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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

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A Significant Public Health Message

BY H. S. CUMMING, SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

IF WE review the public health work of the country during the past year, the prospects of the new year should encourage all of us who work in the field of preventive medicine and public health. Marked as the year was by a period of profound economic depression, social unrest, and financial stringency, I think one thing upon which the public health workers are to be congratulated is that in the face of drastic retrenchment in all other respects, public health funds have suffered the least of all appropriations and outlays. This can mean but one thing—the dependence of national prosperity upon national health has ceased to be submerged in the public consciousness, and the necessity for adequate health protection is now a generally accepted fact—a fact backed by public opinion and which the taxpayers are willing to finance.

Proofs of Gains

Let us refer briefly to some of the figures relating to the prevalence of preventable disease and contrast conditions as they now exist with the conditions, say, of a decade ago. Thus we find that the death rate from tuberculosis for the United States in 1910 was 160.3 and for 1920, 114.2. Again, in 1910 the general typhoid fever death rate was 23.5 per hundred thousand population, in 1920, 7.8. It is safe to say that if in 1910 the statement had been made that in ten years' time the typhoid fever death rate would be only one-third of the figures at that time, the sanitarians generally would have been profoundly sceptical of any such prediction.

There are no considerable figures available from which an accurate statement can be made regarding the infant mortality rate for the United States in 1910, but a conservative estimate would make the rate approximately 124 per thousand births. In 1920 the infant mortality rate in the birth registration area of the United States was 86 per thousand births, a clear gain of approximately 38 points in the last ten years. As a means to further reduce this rate may be noted the passage of the Sheppard-Towner Maternity bill by virtue of which Federal funds are made available to the states. These funds will undoubtedly initiate much work on the part of the States and local communities to preserve maternal and infant life.

Again, in 1910 the scarlet fever death rate was 11.6 per hundred thousand population and in 1920 it had fallen to 4.6. This illustrates the efficacy of general measures for the control of communicable diseases which play such an important part in the organization and activities of our various state and local departments of health.

The mortality from diphtheria shows the advance of preventive medicine in the control of this dread disease of childhood. The death rate from diphtheria in 1910 was 21.4 per hundred thousand population and in 1920 it had sunk to 15.3.

In 1910 the death rate from diarrhea and enteritis in children under two years of age was 100.8; in 1920 this had dropped to 44.0. Thus has the toll taken by this scourge of infant life been reduced by more than half.

So much then for the bright side of the shield.

Where to Focus Attention

Let us now take account of some of the disease problems which face us and for which we must still perfect our measures of prevention. We should not become too complacent over the mastery already accomplished over the diseases just mentioned, in view of the terrific lesson taught us by the influenza epidemic of 1918-1919, and also the figures about to be given in relation to the prevalence of diseases of middle life, such as pneumonia, cancer, heart, and kidney diseases.

In 1910 the general death rate from pneumonia, all forms, was 147.7 per hundred thousand population, and in 1920 this death rate was 137.3. We have, therefore, made but relatively little advance in the problem of pneumonia control. The death rate from acute nephritis and Bright's disease was 99 in 1910 and had declined but to 89.4 in 1920. The death rate from cerebral hemorrhage, or apoplexy, in 1910 was 73.7 per hundred thousand population and rose to 80.9 in 1920. The case is similar as regards cancer. The death rate from this disease in 1910 was 76.2, in 1920, 83.4, an increase of over 7 points per hundred thousand population. Again, the death rate from organic diseases of the heart was 141.5 in 1910 and the figures of 1920 show the rate to be 141.9, showing that no reduction

from this great cause of death has taken place.

A preliminary stocktaking of the kind we have just outlined serves to show us where our health problems lie. That our measures against some of the communicable diseases have been fraught with so much success encourages us to undertake the difficult problems of the control of such diseases as organic heart diseases, cancer, pneumonia, kidney diseases, and the like.

Apart from the control of these diseases one of the crying needs of the country is better organization of health work in the rural communities. A survey made by the Public Health Service two years ago showed that only 3 per cent of our rural districts had adequate local health organizations. It is a pleasure to announce that this number has increased during the past two years from 3 to 6 per cent. This only emphasizes the inadequacy of health service in our rural communities.

It is safe to state that if all of the rural communities were provided with adequate health organizations a tremendous step in advance would have been taken toward the solution of the national health problems. It is full of encouragement, however, to note that the value of preventive health work has been so impressed upon our rural district governments as practically to double during the past two years the number of local health organizations, and we may hope that the increase in the number of health organizations in rural communities will continue in the same proportion.

The future is full of wonderful possibilities for the control of diseases which have up to the present time eluded mastery. Federal, state, and local health authorities, universities and other foundations for health have their corps of trained medical and sanitary personnel working in laboratories, hospitals, quarantine stations, and health departments. These trained observers will doubtless give as good an account in achievement of their work as those who have made the history of preventive medicine to date. The establishment during the year of schools of hygiene in connection with our large universities will insure for the future an increase in the supply of enthusiastic, well trained men and women who have taken up the great profession of public health as their life work.

The Venezuelan Sanitary Renaissance

By Our Latin-American Correspondent

TO THE approaching traveler by sea, La Guayra is a brick-red, sun-baked incrustation on the face of Nature, sprawling precariously at the base of a range of mountains which rise abruptly from the sapphire Caribbean. To the sanitarian with a long memory, it is an anethema, for time once was when it was a plague focus of the worst sort, a menace to every nation whose vessels dropped anchor in that little harbor which is Venezuela's principal port. A departing consul summed up his opinion of the city in a doggerel which has been carbon copied and passed from hand to hand for many years until it has been scattered to the seven seas much in the same manner as "La Ville de St. Nazaire" ran like wildfire through the A. E. F.

Adios,[1] sucia[2] La Guayra,
City of the agile flea,
Manaña, gracias a Dios,[3]
I say adios[4] to thee!

From your filthy sunbaked cerro,[5]
Where los chivos negros[6] roam,
I board a rolling buque,[7]
And I head for home sweet home.

Farewell, ye gloomy casas,[8]
Naked children, moscas,[9] heat
Where the hungry cucarachas[10]
Eat the socks from off your feet.

Where ropas[11] lavenderas[12] wash,
Whene'er they're so inclined,
And hotel waiters strut about
With shirt tails out behind.

Where streets are all retretes[13]
For niños,[14] perros,[15] men,
Where ratas[16] die at noonday
And their fleas hop off again.

Where el agua[17] teems with livestock,
Where at dawn the burros bray,
And the bells in las iglesias,[18]
Clatter through the livelong day.

Farewell, ye grimy cuidad,[19]
Con sus, chinches, pulgos,[20] stench,
I leave you, amiguitos,[21]
Yes, without a single wrench.

But a new spirit is abroad in La Guayra and now it sits blinking in the glaring sunlight, a plague-free, relatively rat-proof town. It has an efficient health officer, Dr. Las Casas, who, under the direction of Dr. L. G. Chacin Itriago, the Director de Sanidad Nacional, has already accomplished wonders.

There is now a central Health Office with a small but well equipped laboratory where the rodent catch is necropsied, mosquitoes identified, stool examinations made, and various sorts of diagnostic work carried on. A safe water supply has been put in, a modern sewerage system is being installed, the wharves, docks, and warehouses have been rat-proofed

Rat-proof, small-boat landing and warehouse, La Guayra, Venezuela

Glossary: 1, Goodbye; 2, dirty; 3, tomorrow, thank God; 4, goodbye; 5, hill; 6, the black goats; 7, ship; 8, houses; 9, fishes; 10, cockroaches; 11, linen; 12, washerwoman; 13, privies; 14, children; 15, dogs; 16, rats; 17, the water; 18, the churches; 19, city; 20, with your bedbugs, lice; 21, little friends.

A general view of La Guayra, Venezuela

and a fine concrete quarantine and immigration station is in process of erection. The thoroughness with which these things have been done is evidenced by the fact that recently after an inspection by one of its sanitary officials, the Panama Canal lifted the quarantine restrictions which it had imposed for many years against passengers from La Guayra and other Venezuelan ports.

The sanitary improvement of La Guayra means much to other ports of the Caribbean littoral as well as to those of Europe, since it is an important port of call and trans-shipment point. It is connected with Caracas, the capital of the Republic, by railway and a splendid automobile road. Macuto, a charming seaside resort, is only a few moments away by railway or auto. The nearest port is Puerto Cabello, so called because its harbor is so excellent that the Spanish explorers thought a ship could be moored there by a hair (cabello). A movement is now under way for the erection of a modern quarantine station there and the attacking of the malaria problem, which is very serious.

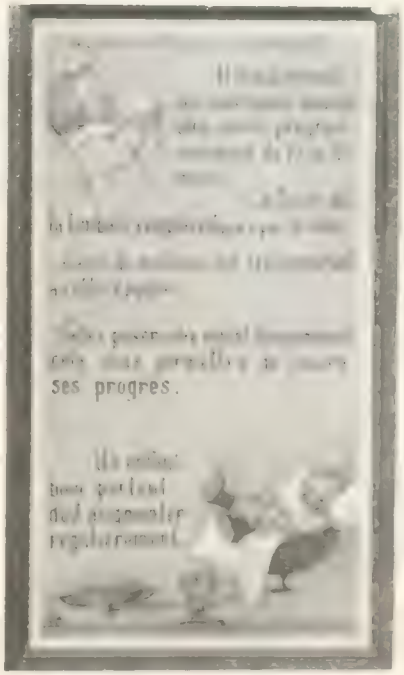
The work which has been accomplished at La Guayra should be a stimulus to other South American ports.

A view of the new quarantine station, La Guayra, Venezuela

The Compelling Health Cartoon

MAN is still in the picture-writing stage of development, despite the wellnigh universal use of the printed or written page, and he who would teach, particularly he who would attempt group instruction, must depend upon this means of communication. Health workers have in part realized this and some very creditable cartoons have been brought out, particularly by the United States Public Health Service and the Illinois Department of Health. The fact remains, however, that the use of really good health cartoons is not sufficiently wide spread and, taken by and large, the average health cartoon is poorly conceived and wretchedly executed. As compared with other classes of this form of art, health cartoons are at the bottom of the list, largely because the monetary rewards for this kind of service are insufficient to attract men of genuine ability and adequate educational background. We need somebody to do for health what Coles Philips did for stockings, E. W. Kimball for the American negro, and A. B. Frost for fishing. The health officer who will secure a Leyendecker or a McCutcheon and keep him hard at work will reach a larger audience, and more effectively than by any other means.

Who has not chuckled over the chubby twins who extol a certain brand of soap? Who cannot recall the joy of Palmer Cox's brownies and their adventures with a soap which floats? Who has not taken careful heed of the words of battery wisdom emitted by the man in overalls and who does not love Aunt Jemina and Uncle Joe? If the prosaic articles of commerce which these mythical characters proclaim can be thus popularized, how much more widespread would be the application of this graphic art to the wonderful story of health, its enemies and its protectors?



*The illustrations used in connection with this article are supplied by courtesy of Dr. Theodore C. Merrill, Director, Department du Nord, American Red Cross, France.

The recent child welfare conferences in France made effectual use of poster display. Among the pictures was the work of Miss Upjohn of the United States, Madame Dick Dumas of France, and Poulbot, the noted child-life artist of France.

A good health cartoon must, first of all, be arresting; it must run out and grab the beholders fancy with a vise-like grip, it must catch his eye and hold it until the idea has penetrated clear up to the hilt and "registered."

To do this, it must be just bizarre enough to attract attention, yet not too unusual, because the idea of faddism must not be given. The arresting feature must be pertinent to the thought to be transmitted, e.g., a picture of a sailor in a high silk hat would attract the eye but would tell no story, whereas a sailor running away from a street walker would, when properly captioned, engage attention and hold it until the idea of avoiding venereal disease had sunk home.

A posed poster. Boy Scouts are often called "Boy Scoots" in France

The execution of the drawing must be good. An amateurish cartoon gets nowhere. It must be clear; it must be simple; it must convey one lesson and only one; and it must have a "wallop." "Above all, it must be logical. Whenever possible, it must contain a little glint of humor, but it must not be too broadly funny lest the mind of the beholder be distracted from the big idea, and it must never shoot over the head of the audience On the other hand it must never hit them in the feet. In other words the cartoon must be accurately aimed. This means that there must be a kernel of broad human understanding in the picture. Unless a special group, e.g., the bluejackets at a training station, is to be reached, the figures in the picture should be just average, natural-looking people, then the story fits practically everybody. The picture must contain action. A public whose chief literary pabulum is the filmed exploits of Hairbreadth Harry, cannot be attracted by the old fashioned still-life figures with loops of conversation spouting from their faces as was the mode in those distant days when spades counted two.

The grewsome, should, on the whole, be avoided as should also the disgusting, the prurient and the frankly pathological, bearing in mind that the end sought is to attract not to repel. Threats should be avoided also. The souls of humanity were menaced with pit-fire for many generations without appreciable effect on general morality before it was discovered that gentle teaching made many permanent converts. The aim of the health cartoon is to turn the feet of the sinner against sanitary morals into the paths of hygienic righteousness, not to make a forcible or eleventh hour conversion. It should be borne in mind that the perfect health cartoon is a pill which the public is to be induced to swallow, therefore, it must be well sugared and gilded but the gilding must be soluble and the sugar coating must not be cloyingly sweet.

Universal Symbolism

Since a cartoon is essentially the method of transfering thought by symbols, the use of symbols must be free and logical. This is exemplified in the political cartoon, where a set

Veillez à ce que votre eau à boire soit saine
La Nature exige beaucoup d'eau
Offrez souvent de l'eau à votre petit
Ne contrariez pas la Nature

Miss Upjohn created this poster to help children everywhere

L'infirmiere de l'ecole accompagne jusque chez eux les petits malades decouverts par le medecin et donne aux parents des conseils pratiques pour la bonne execution des prescriptions du docteur.

These figures are typical of Poulbot's types

of teeth, a donkey, a camel, an elephant, a hatchet and cherry tree are used to convey definite ideas, similarly, in the health cartoon a Prince Albert coat means that the undertaker is on the job, a white cap and apron or an ambulance, a very ill person, and a wolf, hunger. A symbol standing for health, just as Uncle Sam stands for the United States and John Bull for England, is much needed, if for no other reason, because it will abolish the vandyke beard and obstetrical bag supposed to represent the medical profession.

The writing of caption is an art all by itself. Many a good cartoon needs none whatever and has been marked because someone could not resist the temptation to make assurance doubly sure by adding an unneeded explanation. Captions should be complimentary to the cartoon; they should be short, pithy, and carry a punch. They should never state the obvious nor the platitudinous. They should be very simple, and if they can be put into a mentally adhesive jingle so much the better.

Spasmodic advertisement is a waste, to be really effective it must be continuous. So it is with health cartoons, if they appear regularly, if they are good enough, if they are telling, if they hammer the health idea home and clinch it, by and by, results will be seen. There will be a heartier cooperation on the part of the public, it will have an interest in the health officer's work, and it will be quickened to healthier, saner living.

The original of this poster by Miss Upjohn is in the American Red Cross Museum at Washington.

The Blight of Fear

By BERENICE C. SKIDELSKY, New York City

THERE is nothing so potent, according to Thomas Hardy, the eminent English novelist, as fear well maintained.

Fear's undeniable potency, unfortunately, is in the direction of evil. Fear paralyzes initiative, it destroys the will, it reduces the individual to a trembling automaton instead of permitting him to be a free-stepping, self-directing personality.

And yet, despite its distressing effects, fear is one of the most favored weapons in the hands of untutored parents to obtain obedience from their children and to make them "good." The fretful child, demanding something that is not good for him or that it is not expedient for him to have, is told that the bogey man, horribly tusked, is waiting just around the corner to eat naughty little boys who ask for such things. Thereupon, though his eyes widen with terror, his crying is hushed, and the mother has what she mistakenly terms "some peace." She does not realize the evil effects of the fear that has probably turned inward, nor does she suspect that she may be laying the groundwork for later nervous upset in her child—the source of far more disturbance to her peace than a moment's crying.

Early Fears Persist

Modern students of child psychology are practically unanimous in declaring that threats and stories about ghosts, goblins, and other childhood bugaboos, who live in the dark and prey upon little children, create a vivid, lasting and harmful impression upon the minds of very young children. Dr. A. R. MacKenzie, specialist in mental and nervous diseases at Huntington State Hospital, West Virginia, corroborates the idea in emphatic terms.

"The bogey story," he says, "is all wrong. Children who are made to mind through fear of some unseen horror, about which their thoughtless parents or nurses may tell them, and in which they believe with all their little hearts, may actually become insane in consequence of the impressions created on their young minds. The dementia may take any one of various forms. It is a pathological condition."

In illustration, Dr. MacKenzie tells of a case of insanity which grew out of impressions created in childhood by a thoughtless nurse in a child who, up to the age of five, had been perfectly normal—sweet and lovable, devoted to her mother, and happy for hours with her toys. A new nurse came who, in order to make her "behave," threatened her with a bogey man who was lying in wait for her. To drive home the threats, the nurse frequently left the child alone on a deserted road in the dark. At the end of two years the little girl was well nigh unmanageable. This was the forerunner of a mental breakdown a few years later.

Mrs. Margaret J. Powers, director of Social Service and a member of the Mental Hygiene Committee, under the auspices of the New York State Charities Aid Association, is another specialist whose experience has caused her vigorously to denounce the weapon of fear in the training of children. She tells of a

Keystone View Company.

These children at the Silver Cross Day Nursery are enjoying the play that is recreation. Children must play all the time and grown-ups much of the time if the personality is to have its fullest expression.

boy of eleven, nervous and irritable, and with an incontrollable temper, who in the process of psycho-analysis admitted to dreams in which movies with hair-raising plots figured largely.

She tells another pathetic story of a girl of twelve, with a stepmother a little inclined to favor her own children. The child's mother died when she was not quite two years old; and two years later, the little girl was sent to Italy to some relations of her father's. There she was badly beaten, and thoroughly frightened. She came back to America a few years later, with intelligence normal but spirit absolutely broken. Her father's tactics were not unlike those of his brother in Italy, and she continued to be subjected to the same terrorizing processes as in her earlier years. When kept after school she had attacks of acute hysteria, induced by anticipation of the parental displeasure at her late homecoming. Upon one occasion she forged a report card rather than take home one with an unsatisfactory record. Mrs. Powers, in taking charge of the case, got the family to change its attitude a little. But when the father, thanking her for her interest in the child, put it on these grounds: "I want some one to keep the fear in her,"—Mrs. Powers realized how hopeless is a certain kind of parental outlook.

One of the factors in human psychology most to be reckoned with in educational methods is the intense love of a story which is inborn in every one. The recital of deeds performed and events that take place is a source of never failing fascination, especially to the young mind, unwearied by satiety, to which the most commonplace happenings become in the telling a great adventure.

It becomes apparent, therefore, that just as stories wrongly selected are of deplorable influence upon the growing mind, so stories whose choice is backed by wisdom and understanding will do much to strengthen mentality and character.

"Fear," says Mrs. Powers, "has no biological place in the civilized community. The work of education is to build up courage patterns instead."

This fact is deeply understood by the leaders of Community Service, who have in many communities introduced story-telling as a phase of recreation, with trained story-tellers in charge. The success of these groups has been complete, and the children fortunate enough to be part of them are having their little minds soothed and brightened by interesting tales that do not curdle the blood nor raise the hair in horror. The stories are carefully selected not to terrify and thereby crush the little spirit, but to encourage and thereby liberate it. Intelligent outsiders thus, in some cases where it is necessary, are able to counteract the effect of the methods of ill-advised grownups in the home.

Correction

Through an unfortunate typographical error appearing in the concluding sentence of the article by Dr. Alexander Lambert on "The Attitude of the Physician to the Health Center," page 641, December issue of The NATION'S HEALTH, he was credited as saying that "rural standards should be lower." Dr. Lambert's statement was that "rural standards should *not* be lowered.

Keystone View Company.

The fairy stories told the children at bedtime must carry no gruesome content that would tend to promote a persistent and devastating fear repression to become operative under the stress and strain of adult life.

Will Making and Community Welfare

Interests of Communities and of Individuals Advanced Through Thoughtful Planning of Estates

By WILLIAM T. CROSS, Chicago Trust Company, Chicago, Illinois

THE possibilities of use and distribution of one's accumulated property as a means of attaining his desires and of assisting others under the complex conditions affecting private fortunes, is suggested in recent action by the Chicago Trust Company. This institution has established a consultation service in its Trust Department, which is designed to assist patrons of the bank and others in planning the management and distribution of their property. All banks and trust companies, as is well known, are sources of advice regarding property transactions. Whatever importance attaches to the provisions made by the institution mentioned lies in the degree of specialization of service provided and in the recognition given to the human problems that underlie the brief instruments by which men pass-on control of their fortunes. The arrangement calls attention to the significance of bequests and inheritances in relation to community welfare, and to the social content of such terms as guardian, trustee, executor, agent, beneficiary.

Eight thousand eight hundred fifty-five estates were filed for probate in Cook County, Illinois, during the year 1920, an area for which the United States Census reports a population of 3,053,017. Inheritance taxes were paid on 823 estates during that year, this being approximately 10 per cent of the number of estates probated. One-fourth of eight thousand estates probated in a recent year in Cook County, according to one authority, were covered by wills. The remaining six thousand estates were distributed to children and other heirs, following the fixed plan of the Illinois law. For the year 1918 the Chicago *Daily News* reports gifts to charity under the wills of five Chicagoans amounting to $4,805,000. Further than this, no report is available as to the amount of philanthropic gifts under the two thousand or more wills probated. Where there was no will, nothing went to charity.

These meager figures, while incomplete, may be considered representative and carry the suggestion of what the community might gain through wider appreciation of the importance of having wills and through regular consultation on the part of all those who write wills as to the possibilities of conserving their estates and using them to advantage.

If the greatest amount of service is to be rendered through bequests for social welfare or for the care of the sick, will makers or their advisers must be somewhat expert in determining types of work to be aided, the extent of aid that is useful, and the most effective ways of safeguarding the purposes of the bequest.

For the welfare of the individual beneficiary, careful provision should be made through wise restrictions and against unwise ones, and for safeguarding the individual trust. The stakes at issue are important to individuals and communities. Although only slightly discussed heretofore, organized efforts for greater efficiency should be encouraged by all who have an individual or a community interest at stake.

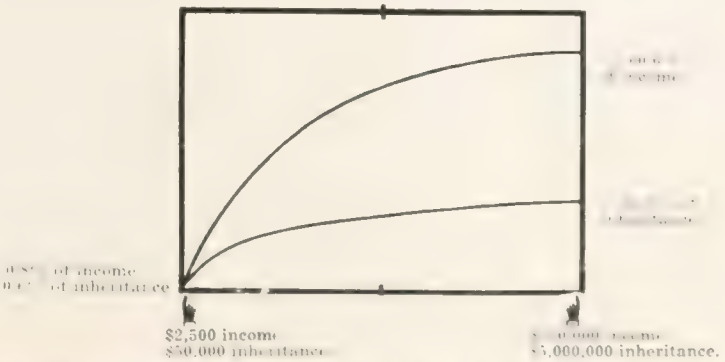
An influence in this direction has resulted from tax legislation. Many men face the alternative of giving either to charity or to the government. Possessors of fortunes above fifty thousand dollars have their attention brought pointedly to the advantages of putting their estates more directly in the service of others, either through immediate gift or by creating trust funds to be administered on behalf of those they wish to assist. In the accompanying chart there is presented a graphical illustration of the acceleration of the tax rate on incomes and inheritances.

Both below and above the point at which tax rates begin to tell, there is need of thoughtful planning. Nearly every family, in the course of a generation, is affected by the inheritance of property. Many estates are of only small value, to be sure. The effective use of small accumulations, however, is vital to both giver and recipient, and the processes and pitfalls should be understood by them as well as by the more fortunately situated.

A few years of educational publicity of the type that is being furthered by the Trust Company Section of the American Bankers' Association may be expected to bring about a better understanding of the opportunities afforded in passing on estates. The attitude at present may be compared with ideas that were prevalent regarding life insurance a generation ago, or regarding vocational training twenty years ago.

The same forethought and analysis that lead a man to buy insurance or to plan a vocational future for his children will lead him to organize his

Increase in Percentage of Income and Inheritance Taxes (as Size of Estate and of Income Increase).



Net income used as basis. In computing inheritance tax, a [illegible] the estate descends to one near relative. State and Federal taxes are combined.

estate effectively for handing-on, once the procedure is clear to him. Wills now are prepared hastily, or overceremoniously, or with a sense of impending death. Men are concerned more immediately with getting on financially. They have in mind vaguely that in the end the bulk of their holdings will go to those for whom they have been responsible in life. They do not in many instances calculate the ways in which their fortunes may be utilized by their heirs or the effects of leaving no wills. The possibilities of trust funds, or of other plans for shaping estates for effective use with beneficiaries or charities are often unthought of. Yet in the disposition one makes of his property after his direct control over it ceases in many instances a man has his greatest opportunity for use of financial capacity and for careful judgment of human relations.

The value of expert guidance in planning charitable bequests is suggested in the references to wills that follow:

I

A bequest has been made recently, in a large city, for the establishment of a children's hospital. An attorney, as trustee of the fund, has gone abroad to study plans, closing up his law practice to do so. Had the donor taken the community more into his confidence, or were there less individuality in the initiation of the plan, the benefits to the community might be more direct and substantial.

II

In the same city, a bequest for establishing a maternity hospital for persons of moderate means has been used eventually for a general hospital. This suggests that the donor may have been poorly informed as to needs, and further that the terms of his will may have been ambiguous.

III

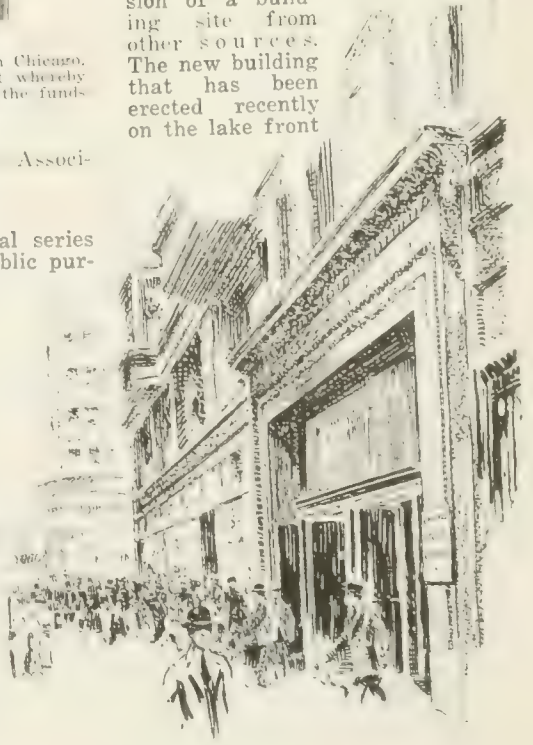
The Sarah Morris Hospital for Children, established in Chicago in connection with the Michael Reese Hospital, was provided in 1910 from a fund of three hundred thousand dollars left by Mrs. Morris. She had been a supporter of the hospital for years, having given, altogether, $250,000 toward its maintenance. The bequest in her will was made to her children with the instruction that they should determine a suitable object. The trustees of the Michael Reese Hospital agreed in furtherance of the plan to provide maintenance for a 125 bed hospital. This is done through cooperation of the Associated Jewish Charities.

Sarah Morris Hospital for Children is one of the most attractive medical foundations in Chicago. It was built in connection with Michael Reese Hospital under a liberal agreement whereby the children of the donor were given authority to determine the object to which the funds should be devoted

IV

One of the most influential series of gifts and bequests for public purposes in Chicago is that of the late Marshall Field. Near the end of the World's Fair in 1893, he provided by donation one million dollars to secure the establishment of the Field Columbian Museum, to which were given many exhibits from the Exposition. Other Chicago citizens gave substantial amounts and also art collections. About two hundred thousand dollars were received through contributions by more than one thousand citizens of their stock in the Exposition Company. The original donation of one million dollars was made on condition that $500,000 additional should be provided by other donors. The same principle was applied by Mr. Field in his will, under which four million dollars was given for a new building, and four million dollars additional for endowment, maintenance and extension of collections of the Museum and for administration. This was conditioned upon the provision of a building site from other sources. The new building that has been erected recently on the lake front

Lucius Teter, president of Chicago Trust Company, has served for ten years as head of the Infant Welfare Society of Chicago. He was until recently president of the Chicago Council of Social Agencies, and is a former president of the Chicago Association of Commerce.



Entrance to Chicago Trust Company at State and Madison Streets, the "busiest street corner in the world."

A conference room, where patrons may discuss confidentially the future disposition of their estates.

The Trust Department of Chicago Trust Company, where the details of fiduciary business are handled.

in Grant Park affords an example of the relation of one benefaction to another. Near the Museum may soon be located, according to the arrangement of the Chicago Plan Commission, a stadium that will seat one hundred thousand persons. Mr. Field in his will provided also endowment funds for an orphan asylum, an old people's home and two hospitals.

V

Bryan Mullanphy of St. Louis in 1851 left a fund the income of which was to be used perpetually to aid immigrants going westward in crossing the "Great American Desert." That was in the days of the prairie schooner and of unconquered Indian tribes.

VI

A trust is reported to have been established in Cleveland recently, the income of the fund to be used perpetually, in designated amounts, for the support of specified institutions. The question of their efficiency in subsequent years, or their comparative value in a rapidly growing community, was not taken into account.

Two Wills in Contrast

The man who has a sort of "city plan" for his estate and who understands the more economical ways of passing-on property is apt to be of more assistance both to his immediate relatives and friends, and to the charitable interests of his community. The possibilities of well calculated action in bequeathing property are illustrated in the plans of two wills that have come recently to the attention of Chicago Trust Company:

VII

Pattern of Mr. Heath's Will. The bulk of the estate is kept intact and efficient administration is assured through naming a trust company as co-executor and co-trustee with the wife. All property is put in two trust funds for support of the wife and one child, a daughter, with the exception of specific bequests made to five charities, and one-third of the remaining estate that is given outright to the wife. The daughter acquires ownership of her portion at thirty years of age, and of her mother's portion when the latter dies. The language is simple and intention unmistakable. Various contingencies are provided for, such as decease of daughter before reaching thirty years of age. It is the will of an experienced and capable business man.

VIII

Pattern of Dr. Jenkins' Will. —Numerous special gifts are made, constituting a large proportion of the estate, with evidences of sentiment—as, for example, "two hundred dollars and first choice of fifty books from my library." Residuary estate left to wife, and no arrangement made for trust fund for either her or a daughter, who is given a specific bequest. No gifts to charity. The property was of such nature that a long period was required for liquidation in order to avoid losses. Bequeathing property was, to this man, a sentimental ceremony, little thought being given to conservation of an estate in the interest of his beneficiaries.

The desires of these two individuals may have been fundamentally the same. Although the situations of their prospective heirs were somewhat dissimilar, it is evident that those in the first example were treated more advantageously. The second man bequeathed his estate in such condition that his executor had difficulty in managing it and finally asked a trust company to take over the work as his agent. Liquidation required an unusually long period and, as a consequence, some of the beneficiaries got little satisfaction from his beneficence. Advice about effective methods of passing-on property, by will, might have led the second man to put his affairs in shape for the purpose, perhaps through a trust established during his lifetime, and to arrange his bequests more effectively. It is noteworthy that the second man, although he was the more religiously trained, had no place in his plan of bequests for public charity. Not only are wills to be distinguished as being effective or ineffective instruments in achieving the purposes of those who write them, but among the good ones various plans of bequest may be followed, according to the testator's ideas of using property.

Social and economic perspective needs to be brought to bear on the establishment of foundations and on the disposition of private fortunes in order to assure the would-be benefactor of the permanent values of the ends sought and to insure execution of plans. A service is inestimably important that makes available information on the practical workings of various plans of bequest and philanthropy and that searches out the various sources to which interested persons may be referred for supplementary information. Those who have not written wills or whose wills do not suit their present situations are encouraged to take advantage of this service and to provide themselves with satisfactory plans without delay, as a matter of insurance and as an ordinary business procedure.

Field Museum and proposed stadium in Grant Park, Chicago. The stadium will be the largest in the world and will seat one hundred thousand. The Museum opens with a series of contributions bequeathed by the late Marshall Field at the time of the World's Fair in 1893. It shows the possibility of subsequent conservation of civic improvement as a bequest is made for a public purpose and is worded liberally.

Cardiac Diseases in Adolescents and Adults

The Incompetent Heart as a Sequel to Preventable Infection is a Serious Public Health Problem

By LOUIS I. HARRIS, M.D., Dr.P.H., Director, Bureau of Preventable Diseases, Department of Health, New York City

THE prevention of diseases of the heart and of the circulatory system has only comparatively recently begun to claim its share of attention. In the din of voices of the many advocates of this and of that public health measure, the plea of those who would focus attention upon the necessity of efforts to prevent cardiac diseases has been nearly lost.

The emotions and sentiments of people cannot be so readily stirred by an appeal for the prevention of cardiac diseases. To the average healthy person, the danger of heart disease seems so remote, and the nature of such disease is so mysterious and confusing, that it is hard to win popular sympathy and support for an organized effort to prevent heart diseases. To those who have not come face to face, in the home or through social or medical work, with the havoc wrought by diseases of the heart there is a lack of the dramatic and popular elements such as have won interest for other phases of public health work.

Diseases of the heart in adults very frequently produce serious secondary changes in the arterial system of the body as a whole, or in localized areas such as in the kidney or brain; or, conversely, such cardiac diseases are secondary to diseases of the circulatory system or kidneys. There is, therefore, a very definite and intimate correlation between diseases of the heart, blood vessels, and kidneys. This is so close a relationship that one cannot entirely separate them in a consideration of a preventive program.

Show Appreciable Increase

Statisticians have disagreed as to whether or not diseases of the heart and of the circulatory system as a whole have increased during the past several decades. Making allowances for the fact that the registration of the causes of death has become more accurate, and that many deaths which we now recognize as being due to cardiac affections were formerly ascribed to "senility," "dropsy," or "sudden death," or were so reported

While records, as pooled by thirty-seven life insurance companies and reported recently in New York, show 1921 to have been the healthiest year in the history of the United States and Canada, certain causes of death —among them organic disease of the heart—have shown appreciable increase.

It is a blot upon our public health records that so great an aggregate of disability should result from preventable infections or from conditions so open to social correctives.

A health program is self-limited which does not take early account of predisposing conditions. Especially should preventive medicine search out and protect the great army of chronic cardiacs.

that the cardiac diseases were wrongly subordinated to some incidental or terminal disease, it seems nevertheless to be true that there has been a definite and appreciable increase in the prevalence of these diseases. However, putting this question aside for the time being, the fact cannot be gainsaid that a great multitude of persons in various age groups are afflicted with such disease. This we are able to state despite the fact that our morbidity statistics are so woefully deficient and unsatisfactory. If it were possible to summon to some central gathering place every person in the United States in whom cardiac disease was definitely diagnosed, even under the limitations which at present hamper our recognition and discovery of all cases, we would bring together enough persons with cardiac disease to equal or possibly outnumber the population of the city of Chicago, the second largest city in this country. If we were to add to this number the persons in this country who suffer from arteriosclerosis or from chronic renal disease, it would be fair to assume that we would have a cardio-nephritic population larger in size than that of the city of New York, which is now estimated at 5,753,151.

In his article on the "Incidence of Heart Disease in Adults," Dr. Dublin very aptly introduces the evidence which he has to present pointing to an increase in the prevalence of organic heart disease by the following statement:

There are today two outstanding public health problems in America, namely, tuberculosis and heart disease. Both are responsible for about the same amount of sickness and death. There are about two million persons in the United States who are seriously impaired from heart disease, and also from pulmonary tuberculosis, and approximately one hundred and fifty thousand of them die each year from each of these two causes. These two fields of public health work have been very differently exploited. That of tuberculosis has for over a period of thirty years received the greatest public attention.

In fact, a recently published report of the Framingham Demonstration gives evidence tending to show that 1 per cent of the population is suffering from active tuberculosis, whereas, in the course of this article Dublin shows that 2 per cent of the persons examined by the insurance companies are rejected each year because of a variety of organic heart defects. Dr. F. L. Hoffmann reports similarly that another company has rejected 2.4 per cent of applicants for insurance because of cardiac defects. There are no available records of a satisfactory character which would conclusively show the frequency of heart disease in the general population, but there have been a number of individual studies which are extremely illuminating.

In connection with the examination of men who were drafted into military service in the recent war, it was reported that of 2,400,000 examined, 120,000, or 5 per cent, showed organic cardiac defects. As a result of the checking up of these cases by the medical members of the advisory boards and by special experts in the diagnosis of cardiac diseases, the cardiac defects were reduced to 85,143. In these the defects were of sufficient

gravity to cause the rejection of the men from military service. In other words, 2.62 per cent or 26.26 men per thousand, of military age, were found to be affected with organic heart disease. In addition there were 3,172 men who were suffering from mitral insufficiency or mitral stenosis with adequate compensation who were accepted for limited military service.

It is interesting to note that many of the reports which have been made on this subject show that the prevalence of cardiac defects among persons living in rural communities is less than among persons living in urban communities, although the incidence of heart disease among those engaged in farm labor is comparatively high. The rate of prevalence of cardiac defects has by some observers been shown to vary according to geographic location, but these conclusions are not to be accepted, because of the marked difference in the diagnostic facilities existing in respective communities as well as because of deficiencies in the methods of health-bookkeeping which prevail. It has been noted, for instance, that in Ireland and Italy, the incidence of heart disease at various ages is higher than in most other countries, and that there is a marked difference in incidence between various parts of the United States. This observation must be accepted with great reservation.

It has also been observed that females show a greater incidence of cardiac defects up to the age of twenty-four years than is found in males of similar age groups. After twenty-four years, however, the incidence of cardiac defects becomes increasingly pronounced in males.

The Heart as a Handicap

The rôle which heart diseases have played in causing poverty and adversely affecting the lives of entire families because of the crippling of the wage earners, is difficult to estimate, but it no doubt constitutes a very substantial and serious factor in the social lives not only of the several million sufferers from these diseases, but among their many dependents as well. Practically every age group of the colored population is affected more heavily than are the whites by organic cardiac disease.

The studies of Schereshewsky and of Robinson and Wilson of the United States Public Health Service among garment workers and among employees in various industries in Cincinnati, respectively, have also given evidence that the rate of prevalence of organic heart disease among the general groups of the population is about the same as was found in those who were examined in the draft.

The study made by the author in association with Dr. Dublin of the Metropolitan Life Insurance Company among a group of 1,980 food-handlers who were submitted to a particularly careful examination, showed a larger incidence of organic heart disease than has generally been reported. We found a fairly high percentage of organic disease among the bakers, waiters, and cooks who were the subject of our investigation. This study as well as the incidence and mortality rate in cardiac diseases in various occupations suggests the necessity of more intensive study of a number of occupational groups who are particularly subject to industrial hazards. It may be stated with assurance that such special occupational studies would reveal a very much higher percentage of cardiac defects in a number of industries than was found to prevail among insurance applicants or men between twenty and thirty-one years of age drafted into military service. We have fairly definite evidence that men employed in the iron and steel mills, especially when their work brings them in close proximity to the various types of furnaces, or processes which subject them for comparatively long periods to temperatures ranging from 100 degrees to 130 degrees F., and are in some cases exposed for brief periods and at fairly frequent intervals to temperatures ranging from 200 degrees to 220 degrees F., that the incidence of myocarditis must be very great. Several observers have reported sudden deaths among such steel workers while at work as the result of organic cardiac disease. It would be of great value also to learn more about the prevalence of organic disease among stationery firemen, ship's stokers, and others similarly employed, as well as to differentiate from among the great mass who are commonly designated as "laborers," so to distinguish the relation of physical strain or exposure to excessive heat, and other factors present in such occupations, to the development of organic heart disease.

Incidence by Age Groups

Interest attaches to the classification by age groups of organic heart disease cases treated in the Glasgow Hospital in 1909. While this does not give the rate of incidence per population, it is interesting to note how the 1,346 cases of heart disease which required hospital care were at the time divided according to age groups. It has certain social and economic implications which are of definite interest.

TABLE I.—MORBIDITY—GLASGOW HOSPITAL—ORGANIC HEART DISEASE, (1909).

Age groups	Cases treated
Under 10	20
10-20	221
20-30	294
30-40	374
40-50	297
50-60	186
Over 60	124
Total	1,346

Dr. Dublin in his report of the "Cause of Death by Occupation," published by the United States Department of Labor for the year 1911 and 1913, gives an analysis of the causes of death among insured persons according to occupation which tends to show that certain occupations are particularly hazardous. He singles out for special emphasis, farmers, blacksmiths, laborers, and masons. In still other studies that have been made, other occupational groups have been shown to have a conspicuously high mortality rate at comparatively early ages as the result of organic heart disease, such as garment workers and bookkeepers.

Unfortunately, it has been customary to concentrate attention almost exclusively on at least largely upon the number of deaths from cardiac diseases. Owing to the lack of dependable morbidity statistics, we know very little about the degree to which cardiac diseases unfit men and women for work and create invalidism. The lack of fitness for the enjoyment of normal life, and total incapacity which undoubtedly exists in thousands of cases by reasons of these diseases, must not be overlooked.

Diseases Affecting the Heart

We know definitely that heart diseases result from focal infections, also from the various infections diseases, particularly those of childhood, as well as from perverted functioning of various organs of internal secretions, and from over-functioning of the thyroid gland, which is particularly important in adolescent girls. Cardiac and arterial diseases are most intimately related to syphilitic infection, and this is important to bear in mind as a possible explanation of the marked prevalence of cardiac defects among certain social groups, and may also explain, in a measure, the fact that for certain age groups, the rate of prevalence of organic heart disease among the colored people is almost twice as high as for

white persons of similar age groups. It is to be noted that the susceptibility of the colored race to a variety of infectious diseases to which they have been exposed in the last two centuries in particular has as its basis, no doubt, the lack of racial immunity, due to a comparatively limited period of contact with such diseases. To this fragmentary enumeration of some of the commoner causes of organic heart disease, one should add a variety of toxic agents incident to faulty metabolism or to lack of care as to personal hygiene. Also toxic agents arising as a result of various diseases as well as those that occur in the industrial environment must be included as potent factors. Long continued physical strains also belong to this category. In an indirect way mental and nervous strains, excesses of various kinds, as well as other factors in the home or industry which induce fatigue may act as indirect causes of cardiac disease. These are among the more familiar causes of cardiac disease, and probably for that reason they have been treated with indifference on the part of the public.

Every clinician who has had experience in the care of persons suffering from diphtheria and scarlet fever has seen the beginning and the evolution of heart disease in many such individuals. Frequently, too, the clinicians can definitely mark the date when follicular tonsillitis or some other infectious disease has inaugurated a pathological process which dooms the patient to suffering, to incapacity, and very frequently to an early death. Physicians, by and large, have been given little opportunity to study the effects of the less obvious factors in the production and evolution of cardiac defects. They have left to private initiative and to commercialized philanthropy the opportunity to make periodic health examinations of their patients, to discover, and to check incipient organic defects.

What we are particularly concerned about as a public health problem, is the early recognition of cases in which any one of numerous causes may have operated to produce damage upon any part of the heart or the vascular system, so that we may shield such persons from physical and mental strains so far as possible, and to prevent their exposure to subsequent infections.

To put it differently, there are several types and stages of preventive work. To begin at the beginning, in order to prevent diseases of the heart, there ought to be care on the part of those who enter into matrimony that in the interest of future offspring, each of the contracting party should be free from syphilitic infection. In the absence of more definite knowledge as to the inheritance of gouty, or other metabolic or endocrine defects, we cannot include these with syphilis as transmissible conditions which may have a definite relation to the development of heart disease in offspring.

Next we come to the period of infancy in which the community as a whole—parents, public health officials, and school authorities—have a definite and individual moral and legal responsibility for protecting children by providing proper housing, ventilation, etc., so as to shield them against contracting infectious diseases and being exposed to other influences or conditions which may lay the foundation for serious cardiac disturbances in the future. The pre-school age group of children have not as yet the benefit of an organized protective agency. It is not the province of this paper to dwell upon the efforts to protect child life in general. Much that is most excellent has already been done in this field.

For adolescents, there ought to be ample provision to ascertain whether or not a given child may be suffering from a cardiac defect, or a condition conducive to such defects, and if so, to make certain that such children are not permitted to enter into industries in which they are inevitably doomed to suffer an aggravation of their cardiac disease with all the menace to health and to life which is implied. Such adolescents should not be permitted to be employed in an industrial environment in which excessive heat, physical strain, or other causes of fatigue may operate alone or in conjunction with other factors to cause a cardiac breakdown. Vocational guidance in this connection does not merely mean a study of the mental and physical endowments of these adolescents with respect to their adaptability to certain occupations, but it should be definitely continued by a studious regard on the part of health officials to so supervise industrial establishments and conditions of work as to prevent any untoward reaction of such occupation upon the heart and physical capacity of such children. This is not dictated by any paternalistic theory, but is a policy which is economically sound and humane.

It may be interesting to note that during the year 1920, of 51,097 children who presented themselves for working papers to the Bureau of Child Hygiene, Department of Health, 813 or 1.6 per cent were found to have a cardiac defect. No doubt, in these examinations, as in most of the examinations conducted by physicians, hospitals, and dispensaries generally, the more modern instruments of precision if they had been available, would have made possible the recognition of even more children having a beginning pathological condition of the heart which could not be detected by the ordinary methods of examination. The law gives the Health Department the power to defer the entrance into industry of those like these 813 who presented cardiac defects among the applicants for working papers last year. At present, however, all control, such as it is, over these defective applicants for employment, is lost when they are sixteen years of age, and the oversight of sanitary health conditions in the shops and factories to which their entrance has been to a great degree neglected.

The time may not be far distant when some organization having a keen regard for the sanctity as well as the economic value of human life will carefully censor each case of death reported in a community and place the blame for such death upon the public authorities, parents, or employers, each in proper measure, as they may have been responsible for failure to conserve and prolong the lives of those who are exposed to the development of cardiac disease or already so handicapped. Many despite themselves, live in overcrowded quarters, or are exposed to the danger of infection as the result of conditions of living or work. Because of neglect of officials or parents to correct potentially dangerous physical defects, they may be thrown into the human scrap heap prematurely like so much discarded and useless machinery. Such a body of censors could rouse those who are responsible for tolerating conditions that are preventable, to a sense of their guilt as passive or even as active agents, by bringing specific indictments for the preventable deaths which occur in the community.

From an economical as well as from a humane and sentimental viewpoint, the lives of infants and young children should be most solicitously guarded. So far as adults are concerned there has, however, been a reflection of a too intensely economical and materialistic viewpoint, in the indifference which, by and large,

exists with reference to the need of similar intensive methods for conserving the lives of such adults in the various age groups. We have been too much obsessed with the estimation in dollars and cents of the life value of adults who die from cardiac as well as other diseases. The reduction of infant mortality, which has been marked by the awakening of some communities to an appreciation of the needless sacrifice of such infants which some years ago was tolerated with indifference or stoicism, has been a cheering sign of the times; but it is necessary to arouse many to an understanding, that through preventable diseases, among which organic heart diseases are conspicuous, we lose annually in this country a small army of young adults whose loss not only brings sorrow and suffering into many homes, but deprives the community of persons capable of making most valuable, social, cultural as well as material contributions to their fellows and to society as a whole. The same commendable impulse which has already achieved such wonderful results in the conservation of child life, must be stimulated and sustained with respect to the prevention of cardiac diseases.

Sufficient emphasis has not been given to the fact that early diagnosis of pathological conditions in the heart is most urgently needed to protect individuals not only from physical and other forms of strain and exposure to danger which are familiarly recognized, but that those suffering from organic heart defects cause a very decided increase in the number of fatalities which are attributed to childbirth, surgical operations, intercurrent infections or other diseases. In other words, mortality from cardiac disease is increased because the affected individuals are not able to meet the normal stresses and strains of life, or certain critical conditions which in a person having a normal heart would not terminate fatally in the large majority of instances. In other words, a person with organic cardiac disease in whatever age group found, suffers a handicap which adds appreciably to the mortality rate from a variety of relatively minor surgical and medical diseases. If all cases in which cardiac defects are a joint factor in the cause of death, or a determining factor, and where some other cause of death is given, were added together, the total of organic heart disease would assume a more serious aspect than is shown in our present statistics.

TABLE II.—DEATHS, UNITED STATES CENSUS AREA, 1918

	Heart Disease	Bright's Disease	Apoplexy	Total
Under 1	[illegible]	173	188	[illegible]
1	177	133	69	[illegible]
2	111	98	[illegible]	[illegible]
3	111	81	13	205
4	115	[illegible]	18	206
5-9	1,008	[illegible]	[illegible]	1,396
Total, under 10	2,[illegible]	861	31[illegible]	[illegible]
10-19	3,340	[illegible]	205	4,484
20-29	5,133	2,198	[illegible]	[illegible]
30-39	[illegible]	1,[illegible]	1,603	13,638
40-49	11,588	[illegible]	[illegible]	24,067
50-59	[illegible]	12,724	[illegible]	[illegible]
60-69	28,445	17,370	16,862	62,677
70-79	31,549	17,907	19,489	[illegible]
80-89	15,263	7,757	9,502	32,522
90-99	1,[illegible]	921	1,071	3,776
100 and over	[illegible]	50	33	162
Unknown age	222	122	112	[illegible]
Total	124,514	73,239	68,861	263,614

Without attempting to adduce further statistical evidence of the prevalence of cardiac diseases in our community, enough has been presented by numerous writers upon this subject, whose voices have thus far fallen upon deaf ears, to indicate the necessity for an aggressive and organized attempt on the part of each and every public and private agency which has a duty or interest in the matter, to apply preventive measures which are appropriate to meet the problems of preventing cardiac diseases at the various stages of life briefly alluded to in the foregoing section.

Before proceeding further to outline with somewhat greater definiteness a plan of campaign to cope with the menace of cardiac diseases, reference should, however, be made to other fragments of evidence showing whether or not cardiac and the related diseases have increased. They are at any rate one of the most conspicuous causes of death in every community.

A table is appended showing the mortality from heart diseases in that area of the census in which public-health bookkeeping has been maintained and which is known as the "registration area." It will be seen that the death rate per hundred thousand from various forms of heart disease, has by and large shown a substantial increase during the period from 1900 to 1918. In 1918, the deaths from influenza claimed a host of victims in this country—it probably caused about three-quarters of a million fatalities—and was in a measure at least responsible for the seeming decrease in the incidence and mortality rate of tuberculosis, heart disease, and other diseases.

TABLE III.—MORTALITY FROM HEART DISEASE—UNITED STATES REGISTRATION AREA, 1900-1918.

Death Rates per Hundred Thousand of Population

	All [illegible]	[illegible] heart
1900	[illegible]	[illegible]
1901	[illegible]	[illegible]
1910	[illegible]	[illegible]
1915	[illegible]	[illegible]
1916	[illegible]	[illegible]
1917	[illegible]	[illegible]
1918	[illegible]	[illegible]

TABLE IV. — DEATHS — NEW YORK CITY, 1920

	Heart Disease	[illegible]	[illegible]	[illegible]
Under 10	219	28	7	254
10 to 19	[illegible]	51	[illegible]	415
20 to 29	[illegible]	[illegible]	[illegible]	[illegible]
30 to 39	[illegible]	[illegible]	21	962
40 to 49	[illegible]	567	[illegible]	1,877
50 to [illegible]	[illegible]	960	128	3,269
60 to 69	2,796	1,200	208	[illegible]
[illegible] to [illegible]	2,383	[illegible]	[illegible]	[illegible]
80 [illegible]	1,117	[illegible]	93	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]

Space does not permit the presentation of statistical evidence showing that there has been not only an increasing mortality from organic heart disease, but an increasing number of deaths registered at an earlier age than in former years.

Surveys Nursing Service

A survey of nursing service in one hundred industries in Massachusetts was reported in a paper read at the November meeting of the New England Industrial Nurses Association by Mrs. Anna M. Staebler, who made the survey as Executive Secretary of the Massachusetts Committee on Health in Industry.

Medical Development of China Receives Impetus

A Study in Contrasts on the Basis of Public Concern Regarding Health Conditions

By EDWIN R. EMBREE, Secretary, Rockefeller Foundation, New York City

IF ANYONE doubts the value of medicine and its application to the health of the people he should visit such a country as China and see the appalling results of the lack of scientific attention to public health. Smallpox patients, with disease in active stage, are about the streets; typhoid fever, which is being eliminated in the West by sanitation of water and milk supplies, is rampant; blindness, trachoma, and other diseases of the eye are everywhere in evidence on the city streets; the infant mortality is shocking; anemia, resulting from hookworm and other intestinal parasites, seems to be well nigh universal. No one who has not seen the disease, suffering, and death among a people who neglect public health can realize the tremendous advance that has been made in America and Europe through diligent, painstaking, and scientific efforts towards the control of disease.

The progress of medicine in China is marked by three distinct stages: (1) Medical care by foreigners, chiefly medical missionaries, in the form of small hospitals and dispensaries dotted here and there throughout the country; (2) the development of medical institutions for the training of Chinese physicians; and (3) the beginnings of Chinese control of their own medical and health work as trained Chinese personnel and leadership evolve.

The earliest infiltration of western medicine came through the physicians attached to trading companies and through medical missionaries. In the year 1805 Dr. Alexander Pearson, surgeon to the East India Company, introduced vaccination in China; in 1820 Robert Morrison and Dr. Livingston of the same company opened temporarily in Canton a dispensary, dealing chiefly in Chinese drugs, and in 1827 Dr. Thomas Richardson Colledge at the port of Macao founded the first permanent institution in China for the purpose of bringing the benefits of western medicine to the suffering Chinese, the Macao Ophthalmic Hospital.

Peter Parker, a Yale graduate and representative of the vigorous Yale Mission Board of those days, the first medical missionary ever appointed as such by any mission board, began in 1834 the great work under missionary auspices which for three-quarters of a century gave to China most of its medical service.

The medical missionaries began from the first to develop hospital facilities. With small resources and with scant equipment they renovated houses, put in beds, accepted patients, and gave such medical and nursing care as they and their families could offer. Catholics and Protestant alike have fostered this scientific and humanitarian work. At present between two and three hundred mission hospitals are scattered throughout practically every province of the immense country. Not only have these institutions given medical relief to individual patients; they have served also as centers from which have radiated knowledge of western medicine, respect for modern science and the beginnings of appreciation of public health.

The second step in the development of medicine in China has been the establishment of medical institutions of high standard for the training of Chinese physicians, nurses and technicians. For many years a few Chinese have been studying in other countries. A number have been trained in America, and small groups in England and the countries of Continental Europe. The chief place for foreign education, however, has been Japan. Unfortunately, on account of language and other limitations, the Chinese have found it difficult to enter the great Imperial Universities of Japan. Trained at the inferior special schools, the Chinese physicians, who are largely in charge of government positions in army and provincial and municipal posts, do not represent the best in Japanese education.

Study in foreign countries cannot solve the problems of a nation's education in any art or science. The establishment of medical schools in China has therefore been regarded as the most important aspect of the direct contribution of the West to this great country of the East. The Hunan-Yale School at Changsha, Central China, the former Harvard Medical School at Shanghai, and the Med-

This admirable institution, erected and managed by Chinese initiative and with Chinese funds and staffed with Chinese personnel, represents the most encouraging evidence of the application of scientific medicine and of modern methods by the Chinese themselves

ical Department of the Shantung Christian University at Tsinan have been for a decade giving a creditable medical training to ever increasing numbers of Chinese.

Ward in Central Hospital, Peking. This arrangement, light, and ventilation in this Chinese hospital, erected and directed entirely by Chinese, are beyond criticism. The medical and nursing care is of high standard.

Peking Medical College

The latest addition to the forces of medical education in China is the Peking Union Medical College. This institution, founded on the basis of an earlier school organized under a union of American and British missionary societies, has been taken over by a group of Trustees representing jointly these original societies and the Rockefeller Foundation. An entirely new institution including modern laboratories and ward buildings has been erected and is being maintained by funds from the China Medical Board of the Rockefeller Foundation.

The Peking Union Medical College was formally dedicated to its service to medicine in China in the autumn of 1921. At the time of the dedication there were held in Peking meetings of the Trustees of the college and an international medical congress including representative men of science and educational leaders from France, the British Isles, America, Canada, Japan, Java, the Philippines, Korea, and practically every province of China.

An Interesting Group

The new college has been in course of construction since 1917. Sixteen buildings, with sweeping green tile roofs and great overhanging eaves house the laboratories, hospital wards, and auxiliary structures of the institution proper. Adjoining are the buildings of the pre-medical school which gives three years of intensive training in the chemical, physical, and biological sciences preparatory to medicine. Nearby in the Tartar City are situated in two residence areas groups of modern brick houses —the homes of the members of the faculty and their families. The institution has been erected in architecture characteristic of the best in Chinese classic and sacred building. It is maintained in accordance with high standards of western science.

It is recognized that neither this institution nor any number of schools which one agency might maintain would be able to train the great body of medical practitioners needed by the Chinese. The purpose, therefore, in establishing this college has been to set standards, to train leaders, to demonstrate what an adequate medical college in China might represent. Thus, by a single institution, it is hoped to influence an entire nation. It is because of this purpose that so great significance was attached to the attendance at the dedication last autumn of the large body of medical men from all parts of China, and to their expressed desire to share in the opportunities for cooperation and for advanced study.

Looks to Future

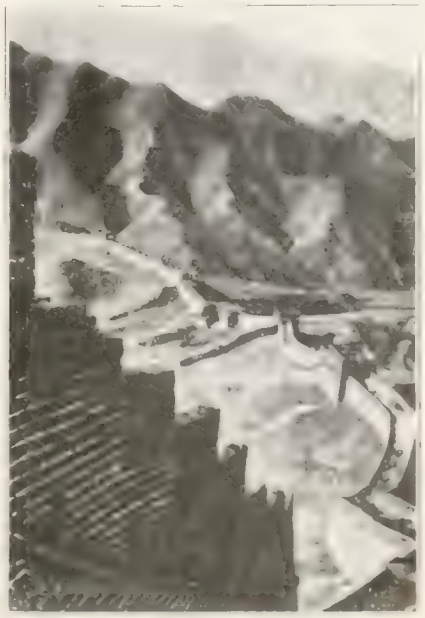
The budgets provided for the college and hospital for the years of the immediate future, while slightly below those of similar well-established institutions of high standing in the United States, are so much above those of the other colleges and hospitals in the Chinese republic as to make this institution unique in all China, in some aspects unique in the entire Far East. This places upon the faculty a responsibility for leadership in medical teaching, in nurse training, in hospital management and in the advancement of medical science and public health, to which they are alive. Few medical schools, few faculties, have ever had before them the opportunities or the challenge to high endeavor which now confront the Peking Union Medical College.

Personnel and Leadership

Finally, and most encouraging of all, the Chinese through their own leaders and their own trained personnel are beginning to organize and to man their own hospitals and to make beginnings in the establishment of their own medical schools. The most farsighted of the education leaders from the West have recognized from the beginning that only by developing Chinese personnel and Chinese initiative could the medical problems of this great country be met. The new medical college at Peking, the Hunan-Yale school at Changsha, and similar institutions have had as a major purpose the development as rapidly as possible of Chinese scientists who would begin to take the responsible position in teaching and in management.

An Outstanding Work

The Central Hospital in Peking is a most encouraging example of the present stage of development. The Central Hospital was erected by Chinese funds as a result of Chinese initiative; it is maintained by a Chinese Board of Trustees and supported by contributions from the Chinese. It is a striking instance of the fulfilment of Chinese promise in medical science and medical service.



Section of the great wall of China. This wall, a symbol of the [illegible] China maintained for centuries and which kept out friend and foe alike. Only recently have new ideas and methods [illegible] to penetrate the closed doors of these people.

An interesting adaptation of sheet iron construction in the dispensary at Wuhu on the Yangtse River.

To such men as Dr. S. P. Chen, the director of this hospital, Dr. Fu-chun Yen, dean of the medical school at Changsha and a small group of men is now being handed the torch of medical leadership in China.

English School Health Program

By Our London Correspondent

THE annual report of Sir George Newman, chief medical officer of the Board of Education, has been issued recently. The national system of inspection was established in 1907, and although the war delayed its proper working, good results are beginning to manifest themselves. While the scheme as a whole has abundantly justified itself, only a part of the problem is covered. As the report points out, in order that it be really effective, it must be extended to both the years preceding and the years following school life. However, the lack is being increasingly supplied, and the ideal of coordinated supervision is being approached in an endeavor to arrive at a sound and practical training of the body from infancy to adolescence.

Such supervision is not a waste of money, as some contend, but a step in the direction of economy, the report declared. For instance, last year's medical inspection showed that of 2,434,252 children examined, 1,166,794, or 47.9 per cent, were found to be suffering from defects. The report states that the medical staff of the 316 local education authorities numbers 800 whole time officers or thereabouts and 1,900 school nurses. In round numbers, 2,400,000 children are medically inspected during the year, falling into three groups at five years, eight years, and at twelve years,—in other words as entrants, intermediates, and leavers. Each child whether sick or well attending the public elementary schools passes medical inspection at the hands of a doctor three times in his school life.

There are some good school clinics used partly for examination purposes but mainly for treatment. The experience of the education authorities during the past fourteen years has demonstrated, first, that there is a degree of physical defect and impairment among school children which prevents large numbers of them from receiving reasonable benefit from the education which the authorities provide, and is in itself wasteful in causing absence from school and disability; secondly, that unless the authority itself arranges for, or provides means of treatment, the great majority of children will not in fact be treated and a harvest of physical degeneration will result. It is superfluous to elaborate further, but this may be said, that, apart from all questions of suffering or disease or death, the State is not getting adequate returns for a substantial part of its public expenditure on education. If the child entering school is feeble or ailing, the system of public education is hampered from the beginning. The problem of securing the physique of the entrant is one of the serious problems of public health.

The physical welfare, and, in part, the education of the child of school age, are dependent in their issues upon ante-school conditions, healthy parentage, care of infancy, and a desirable home life of nurture. It is dependent upon its issues upon post-school conditions, after-care, continued physical education, supervision of juvenile employment, and some practical guidance in the duties of healthy and responsible parenthood.

The work of the sanitary authority and of the voluntary agency combined with general social improvement has brought about in recent years a decline in infant mortality which has effected since 1911 a saving of not less than 26,000 infant lives a year, the report states. The successful medical treatment of 400,000 school children in a year, a result of the school medical service, is an example of State economy. Something more is required, namely, the equipment of the child for life, its cleanliness, its physical training, its education, the preparation for and safeguarding of its future employment.

Three disadvantages of State intervention were anticipated in the early days: (1) that such action would pauperize the parent and destroy the sense of parental responsibility; (2) that it would impose an unremunerative burden on the rate payer and (3) that it would have a detrimental effect on the legitimate practice of medical men. The history of the school medical service has dispelled these fears. Parental responsibility has been stimulated, the investment is yielding high interest, and medical treatment has been sufficiently safeguarded to secure the support and cooperation of the medical profession.

Rural Sociologists Meet

Prior to the first regular session of the American Sociological Society in Pittsburgh, rural sociologists held a session at the Fort Pitt Hotel, December 27, at 2:30 p. m. "The Rural Community and the Rural Neighborhood as Social Units" was the round table topic for discussion led by Dr. C. C. Taylor, North Carolina A. and M. College, Prof. J. H. Kolb, University of Wisconsin, and Prof. Dwight Sanderson, Cornell University. Dr. C. J. Galpin presided.

"Children's Home" is Gift of New Yorkers

The Society for the Prevention of Cruelty to Children, a New York organization, is raising a $4,000,000 building on Fifth avenue and 105th street, New York. The structure is the gift of Mr. and Mrs. August Heckscher who, approached with an appeal for a motor bus, responded with this generous endowment. The "Children's Society" was founded by Commodore Elbridge T. Gary and his associates.

Motion Pictures as Used in Health Education

Visualized Truth Carries Its Own Argument and Calls Forth Immediate Response

By C. E. TURNER, Assistant Professor of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

THE production of motion pictures dealing with various phases of public health and sanitation is perhaps the most important development of the last few years in the field of popular health education. We are really just beginning to appreciate the educational possibilities of the "movie." And although the principle field of the motion picture may continue to be popular amusement, as it has been heretofore, the present attitude of educators in all parts of the country indicates that the motion picture, like the automobile, is likely to become an increasingly important and useful servant as well as a pleasing diversion.

Hampered by Regulations

Several difficulties have delayed the development of an educational motion picture program. The amusement possibilities were so obvious and the financial return from this type of film so great that the available capital was diverted from the educational field, which required a more serious and less profitable form of production. The control of the industry has been mostly in the hands of men whose first consideration was financial return, and only recently has there been organized for the promotion of visual education any considerable group of educators, backed by sufficient capital to undertake the tremendous expense attending initial production. Occasionally small producers have made health education pictures of decided merit and value, but there was no avenue by which to secure general distribution among school and health authorities, and it was difficult for educators to find even those films which did exist.

The motion picture is a wonderful medium for the transmission of thought. It conveys impressions more rapidly than the voice by showing exact relationships and actions quickly, accurately, and vividly through the wonderful medium of the eye. Pictures which may require weeks to photograph will show the development of an egg to an adult animal in a fifteen minute reel. Through the "movie" the eye of the audience looks through the microscope, the telescope, or any other optical instrument. The animated diagram presents the hidden and internal operations of a mechanism. In scientific motion pictures the invisibly small is portrayed, the indiscernably distant is brought near, and the element of time is vanquished.

Another difficulty in the development of educational pictures has been the restriction placed upon the showing of the films by state authorities or insurance organizations because of the fire hazard, and in some states the authorities have doubtless felt the pressure of the organized motion picture industry, whose interest it has been to have the strictest possible regulations in order that there might be few exhibition places outside the theaters themselves. The use of non-inflammable films, and the development of safe portable machines which show both lantern slides and films have made it possible for educators to urge new regulations, the adoption of which in many states has already made practicable the wide extra-theater use of films.

Not only has the fire hazard been removed, but other technical improvements promise much for visual education. There is sure to be further improvement in color photography and in securing better stereoscopic effects, and it is highly probable that we may soon have some device which will make it possible to stop a picture on the screen. This would be of inestimable value to the health official and teacher, since they could use any part of the film as a lantern slide and, after the necessary explanations, set the picture in motion once more. The combined use of lantern slide and film on the same machine has already provided excellent opportunity for the lecture "movie."

The Propaganda Film

There are three distinctly different kinds of instructional health motion pictures. One variety is what may be called the propaganda film. It is in part educational, but it is prepared for the general adult audience, and not for pupils. Its fundamental object is to arouse the enthusiasm of the observer for some worthy movement or organization, by depicting its activities and accomplishments. Several such films, for example, have been prepared by the Red Cross, and they have a distinct usefulness. Advertising films which show in an enlightening manner the process of manufacture of some food or sanitary product belong to the same class of pictures.

Commendable as these films are, they are not designed to be used in schools or where instruction alone is to be given. No matter how interesting the manufacturing process or how laudable the activities of the organization, the film is planned and produced in a different way than it would have been if its sole purpose had been education.

The second type of picture is the

Fig. 1. Collecting tanks and gate house on Moon Island.

Fig. 3. The "trickling" or rock filter.

drama which presents with its plot and human interest certain health information, leaving in the mind of the spectator correct ideas regarding the hygienic conduct of life without detracting from his interest in the drama itself. These pictures are for the theatrical and entertainment circuit, and have distinct possibilities for service. They are difficult to present because if they contain too much health instruction the action is slowed up and the picture fails "to go over" as an amusement feature. On the other hand, if the health instruction is entirely subordinated to the action of the drama, the point of the picture may be entirely lost. There is the further difficulty that unless such a picture is presented under the auspices of some organization or health authority which will vouch for it, the audience confuses it with the ordinary picture drama which makes small pretense of accuracy in presenting scientific details. In spite of these difficulties, a few successful pictures of this type have already been produced, and the genius who can present health truths through this medium in a way which people will enjoy,—just as Bunyan presented moral truths in "Pilgrim's Progress," and as Kennedy presented moral lessons in a different way in "The Servant in the House," will do a great service to society. The French report very good results from the use of such pictures in the campaign against tuberculosis.

Systematically Educative

The third and most important type of health "movie" is the strictly educational film; and it is this type of picture which is being developed most rapidly. This variety of film takes on added importance because, from all appearances, both motion picture instruction and systematic health teaching are making their way into the school systems at this time. Interest in the educational phases of child health has been most keen since the war, and there are many indications that within the next decade a sound program of health education will be installed throughout the country. The activities of the child health demonstration which the National Child Health Council is undertaking in Mansfield, Ohio, the activities of the Committee of the American Public Health Association reporting on the School Health Program, the expansion of the activities of the Joint Committee of the American Medical Association and the National Educational Association on the subject of Health Problems in Education, the wide interest in the new dramatic devices for health education developed by the Child Health Organization, and the public utterances of leading administrators in the field of education all point to the rapid development of this field.

At the same time motion picture instruction in a variety of subjects is rapidly being introduced in the public schools. In Chicago, Detroit, New York, Newark, and several other large cities, as well as several smaller communities, visual education has already been made an integral part of the instruction. The most important development in this new field has been the organization of the Society for Visual Education, which includes educators from every state in the Union, and which has undertaken the production of series of school films in history, economics, civics, geography, nature study and physics, as well as in health and sanitation. Each series is being prepared under the direction of a special committee. The members of the Committee on Health and Sanitation are Dr. Victor C. Vaughan, chairman, Dr. Simon Flexner, Prof. F. M. Gregg, Dr. Ludwig Hektoen, Prof. E. O. Jordan, Dr. Wickliffe Rose, Dr. M. J. Rosenau, and the writer.

Production Grows Apace

The Committee's production program has only just begun. The films already in general circulation include "Getting Acquainted with Bacteria," "Waste Disposal in Cities," and "Unhooking the Hookworm." This last film was prepared by the Rockefeller Foundation, and not by the Committee on Health and Sanitation. The Society for Visual Education is acting as a distributing agency in this instance. The future production program will be pushed forward as rapidly as possible and the new films to appear will deal with such subjects as: health habits; food values, and nutrition; the cleanliness of foods; posture; public health aspects of various

Fig. 5. The sand filter. After this process only 1 per cent of bacteria remains

communicable diseases; sanitation of schools, factories, and cities; water supply; and waste disposal. All of these films will be short one or two reel subjects, and will be made primarily and solely for instructive purposes. The films which are now being prepared, although useful in higher education, are sufficiently non-technical in nature to be adaptable for pupils in the upper grades or for adult lay audiences.

The educational value of the films stands out above their entertainment possibilities and yet the interest in this novel way of presenting health information has been sufficient to make the films very popular. Moreover, health officials and educators who use these pictures need have no fear of exhibiting something which may have been seen already on the theater screen. The Society has adopted a definite policy of presenting these films only through educational or health authorities, and although a health officer may arrange for a theater showing, the theater itself cannot without his authority and cooperation secure the use of these pictures.

Some of the advantages offered by the motion picture as a method of presenting information are illustrated in the film "Waste Disposal in Cities," from which the accompanying illustrations are taken. This film outlines the direct disposal of sewage by discharge on the outgoing tide in Boston Harbor, and the more com-

Fig. 4. Each piece of rock becomes coated with bacteria.

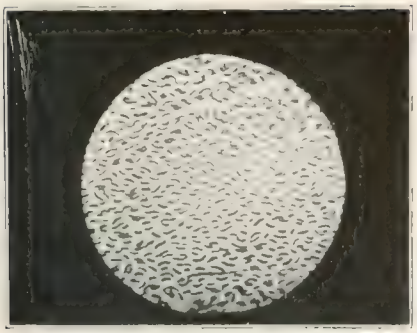


Fig. 6. Bacteria under the microscope.

plicated sewage disposal process in the City of Brockton, where the sewage is forced from the pumping station to a purification plant, including trickling filters, septic tanks, and sand filters, after which the effluent is thrown into a small stream where a succession of bacteria, protozoa, other minute animals, and finally fish effect a rapid completion of the final stages of purification. Pictures taken through the microscope make clear the bacteriological processes which are involved, and the spectator sees both living and stained bacteria as clearly as he could when looking through the compound microscope. An animated diagram reviews every detail of the progress of the sewage through the purification plant, and presents in a minute a more vivid and complete impression than could be obtained by an individual who is not an engineer through a half hour's description even with photographs and diagrams. The process of stream purification and the appearance of various microscopic organisms which take part in it are presented as clearly as by a half day's trip along the stream itself.

Shows Actual Conditions

The motion picture is a wonderful medium for the transmission of thought. It conveys impressions more rapidly than the voice by showing exact relationships and actions quickly, accurately, and vividly through the wonderful medium of the eye. Pictures which may require weeks to photograph will show the development of an egg to an adult animal in a fifteen minute reel. Through the "movie" the eye of the audience looks through the microscope, the telescope, or any other optical instrument. The animated diagram presents the hidden and internal operations of a mechanism. In scientific motion pictures the invisibly small is portrayed, the indiscernibly distant is brought near, and time is vanquished.

It is the purpose of the Committee on Health and Sanitation to utilize this new educational force to the best advantage in presenting health information to both children and adults in such a manner as to stimulate the desire for healthful living, and create a vital health conscience.

Fig. 7. Trout live in this brook.

Fig. 8. The purified stream

Recent Hospital Rulings

THE Supreme Court of Georgia recently passed upon the question of granting a permit for the construction of a health resort and sanitarium. Sec. 729 of the Code of the City of Atlanta, which provides that "it shall be lawful for any person or persons, or corporation, to construct, erect, or build a house to be used as a private sanitarium, hospital, or boarding house, or other house of like character, wherein patients are kept, and medical surgical treatment is given or performed," except in the manner herein provided is within the police power delegated to the municipality whereby power is given to the mayor and general council "to control, regulate, and in its discretion prohibit the erection and maintenance of sanatoriums, boarding houses, and either similar places in residence portions of the city."

A building alleged to be used as "a tourist and health resort" is prima facie included in that class described as a "house to be used as a private sanitarium, hospital or boarding house, or other house of like character, wherein patients are kept and medical or surgical treatment is given," as employed in section 729 of the Code of the City of Atlanta.

J. Gilbert delivered the opinion of the court:

Under the police power the state has undoubted constitutional power to protect the public health and morals from improper use of private property.

Among the objections urged against the petition was that the property upon which it was proposed to erect a health resort was only 115 steps from the entrance to Piedmont Park; that Piedmont Park would become an annex for crippled and deformed persons; that blood disease patients in petitioner's building would use and pollute the swimming pool in the park; that other hospitals would have to be allowed near the park; that children would be kept away from the park by parents on account of the nearness of invalids and convalescents in the building of petitioner; and that the health resort would commercialize the park. It would seem that public parks of a city are intended for the free use of sick persons, cripples, invalids, and convalescents, as well as persons enjoying perfect health, children and their nurses. So far as we are aware, it has never been suggested that any one or more classes can be arbitarily prohibited the use of a public park directly or indirectly, or that their presence is unwelcome.

We think it is obvious that a "tourist and health resort," as described in the petition, not only is not per se harmful to public health and morals, but, when properly located and conducted, is legitimate, beneficial, and humanitarian. Notwithstanding the fact that the business is not per se injurious to public health and morals, it belongs to that class included within the control of the police power of the state. It would be an arbitrary and illegal exercise of power to decline the permit, unless it was shown that the building was injurious to health and morals."—*Blackman Health Resort v. Atlanta*, [illegible] S. E. [illegible].

Facts, like rights, are only relative, never absolute, and only take on meaning when arranged with reference to other facts.—Todd.

Medical Training for Social Workers

By FLORENCE MEREDITH, M.D., Lecturer in Medicine, Smith College Training School for Social Work, and New York School of Social Work; Professor of Hygiene, Woman's Medical College of Pennsylvania, Philadelphia, Pa.

SINCE the year 1900 doctors in hospitals have come in contact occasionally with individuals known as "medical social workers." To many of the doctors this individual was understood to be a most valuable part of the hospital work wherever she was found. To others she was a person undeniably of large sympathies, but often of small preparation for her chosen work. The best social workers of the past have been those endowed naturally with an understanding of human nature which has developed in them an ability to step into the affairs of others and straighten them out. Some had in addition special training in theoretical sociology and some in nursing. The outstanding feature of the early social worker, however, was her natural qualification for gathering together the scattered ends of individual, domestic, and community relationships, and joining them in a way that should result in the welfare of all concerned. In fact, for a time the word welfare was used in connection with her work. The term "social adjustment" is now in better repute.

Develop Definite Technic

The outstanding lack in the social worker of the past was that of a definite technic developed through organized study of her profession. This was not always a lack, for certain individuals had the ability to develop a marvelous technic from their own experience.

Rather recently there have been schools for training in the profession of social work, as there should be for all professional training of course—schools that devote some time to theoretical training, and more time to supervised practice training.

This sort of training, while it is essential for all social work, is particularly so in preparation for medical social work. In the year 1918 Smith College opened a school to train social workers to meet an emergency produced by the war for psychiatric social workers. The following year other courses were added in medical social work and community service. It is probable that the curriculum will soon be further extended. The New York School has also been giving training for medical social workers, the present plan having been inaugurated this fall.

Those who have planned the course in medicine for social workers have had in mind the necessity for considerable knowledge of both medical practice and the technic of social work, neither perhaps being fundamental to the other, but each being carried on more effectively by the side of the other. Hence the preliminary requirements are neither previous training in social work, nor in nursing or medical sciences, but a broad education equivalent to that essential for the A.B. degree.

As to the teaching of medicine, we endeavor to give a bird's eye view of the whole subject, beginning with a general study of anatomy, gross and microscopic, and physiology. This part of the work is as brief as is consistent with an intelligent understanding of later subjects, and for lack of time cannot include laboratory work. Those students who are so fortunate as to have taken biology and chemistry, possibly also physiology, in college, have an advantage in the early part of the work, but are usually not given credits that will exempt them from any part of the course, because the point of view will be somewhat different in courses particularly designed to enable the social worker to deal with medico-social cases, rather than to have a theoretical and laboratory knowledge of these sciences.

As rapidly as possible progress is made toward habits of living that make for health and of a study of pathological processes as they appear in the patient.

By this training of social workers in medicine, several things are expected, which do not include of course the making of accurate diagnoses, least of all any suggestion as to definite medical treatment. First of all, it is hoped that the student will be able to get a grasp of the principles of right living, so that she may spread them abroad wherever she goes. To be sure, these rules differ with different individuals, and would thus better be prescribed individually wherever possible. But since it is manifestly impossible to do this for each of our hundred millions, there must be a more extensive application of the general principles of hygiene that are a good basis for health making. Much has been said about these principles—the need of fresh air, and a balance between work and rest, sufficient sleep and recreation, proper food and clothing, and all the

Smith has introduced into the technical training for social work such generalizations in medicine as afford a good basis for health building.

others. But they have usually not been said by individuals to individuals—by informed individuals to individuals who are running counter to these principles.

Background of Symptoms

Bearing in mind the necessity for physical examinations even of those who are well, for the purpose of keeping so, social workers may often make simple suggestions with such force that they turn the balance from a state of "ailing" to a state of health. They should be able to determine, however, when such suggestions would be unwise, and when the individual must be brought into closer touch with medical science.

For this purpose social workers must have a discriminating knowledge in regard to the signs and symptoms of disease. They should know for example, when an individual shows such a symptom as cyanosis, and should know that no advice from a layman is adequate in such a case, but that the individual should be thoroughly examined for its cause and treatment. This being able to discriminate with some degree of accuracy between the sick and the well is one of the things we hope for, not that a diagnosis of the cause of the cyanosis be made, but that the various possibilities in such a case be recognized and the case be dealt with suitably by getting him to a doctor.

One of the questions in the recent examination at the end of the summer course at Smith, was "State as many causes of headache as you can." A headache is often not simply a headache, and we expect the student to realize this. That they do so is testified to by the fact that one student enumerated twenty-two fundamental causes of headache.

By recognizing the possibilities in symptoms there is opportunity for excellent medical social work entirely apart from a hospital social work department, individuals who have never been to a hospital or a doctor being directed thereto by a social worker with medical training. For this reason we hope ultimately to have all our students so trained, whether they intend to specialize in hospital social work or not, so that they may first, while dealing with the well, see that health education is given to conserve health. The privilege of doing this is not often given to doctors, except through public speeches and printed articles. Doctors do not see the well, as a rule. It is a well known fact that not more than 5 per cent of the population is at all regularly in contact with medical science. The other 95 per cent includes many who are actually ill, and many who would greatly profit by a physical examination although able to be about and working. The physical examination for each and every individual will more quickly become a reality after medically trained social workers are in the field in larger numbers. In addition they may, as already suggested, help to sort out the sick from the well, giving health education to the well, and getting the sick where they belong. The average layman is not only unfamiliar with the common signs of ill health, but often holds mistaken notions about them. If the social worker, by using judgment in this field, wins the confidence of the public, she will prove the most important connecting link between medical science and the public that needs it.

The preliminary requirements of the students are [illegible] in addition to training in the medical sciences, [illegible] personal qualities.

In the second place, we expect our students to learn not only signs that indicate disease, but to understand the relative seriousness of certain diseases, so that they will more than ever exert every effort to see that treatment is carried out, and that those who need continued care are kept in touch with that care. Without a knowledge of the possibilities in a case, for example, of endocarditis in a child, even though the doctor is explicit in his directions to the mother, there is a large chance that the case will be permitted to live in such a way as to make lasting bad results inevitable. Often it is the social worker who must supply to the family the feeling of the importance of following each detail of treatment, and moreover to adjust matters so that this may be done—both sometimes stupendous tasks.

Personal Adjustment Counts

Furthermore we hope that the students will get an adequate grasp of the way in which social maladjustments lead to disease, and conversely of the way in which disease leads to social maladjustment. In one case she will find the former state of affairs, in another, the latter. More often, however, she will find a vicious circle where disease and maladjustment are coincidently reinforcing each other. It is breaking into these vicious circles that the social worker can accomplish the most brilliant results.

The doctor in private practice must as a rule do this for himself, in so far as he is able. But in dispensary work it is impossible, on account of the volume of the work if for no other reason. Even supposing the doctor to be quite aware of the ramifications of a case into other fields than [illegible] medical work, and has neither the time nor the ability, although sometimes he has the inclination, to leave it for such adjustments. Those of the medical profession who have felt this need of an extension of medical

No credits on the basis of previous work are given to exempt any of the students from any part of the prescribed work, as it is felt that a point of view is developed which is important in carrying out effectual social work in medicine.

work into the individual and family social condition (and who has not, who has worked in a clinic?) have often been tempted to use their own possibly good natural ability to solve these problems. But, after all, it is not that for which they are particular trained, and it is not an economical arrangement for the person trained in one field to spend his time in another. The person trained in medicine should be devoting his time to medical work as such, and the extension of medical work into other fields should be cared for by others, providing others can be found with sufficient knowledge of both the medical and social field.

We therefore expect our students to understand what doctors are trying to do medically, and in their own way to supplement work that otherwise will often be futile.

Finally, we expect the students to be in sympathy with all the great movements for public health—those conducted both by the various divisions of the government, and by private organizations. The individual may often be helped more through such large work than through personal work. Medical social workers may elect to ally themselves with work of this scope. At all events, if they continue to work with individuals it will be necessary that they know the forces working for health upon which they can call for assistance. There is often in the community just such a rest home as the parturient mother needs, for example, but the doctor does not know it, nor the patient; hence it may not be utilized in the most urgent cases. At the other end of the problem we have the institution doing admirable work but not adequately supported because the public does not know of its needs.

To sum up, then, the aim in training medical social workers is, first, to produce social workers. They should be, above all things, social workers, knowing all there is to be known about social work. Secondly, it is to add to this knowledge of their own profession sufficient knowledge of medicine that they may correlate medicine and social work so that each may act more fully for the benefit of mankind.

Occupational Therapy Used In 37 Hospitals

Occupational therapy is used in 37 hospitals for nervous and mental patients in the United States according to answers received from a questionnaire sent to all state and private hospitals for nervous and mental diseases by the committee on occupational therapy of the American Medico-Psychological Association. Dr. H. J. Gahagan, former superintendent of the Illinois State Hospital, was chairman of the committee.

Of the fifty-two institutions which replied, a small percentage of the total number, thirty-seven replied in the affirmative, while fifteen stated that occupational therapy was not used. The average number of hours the patients are employed was stated to be four, maximum six, with a minimum of two hours daily.

"New Eyes" Are Given to 200 New York Children

Out of 100,000 pupils in the New York public schools who fail to be promoted each year, 50,000 have defective eyesight, according to a report from the Eye Sight Conservation Council of America, New York City.

The Junior Red Cross has established a $5,000 fund to aid parents in buying glasses for their children. Already two hundred children have been given "new eyes," according to a report issued by a local chapter of the Red Cross.

The Council recommends that every child who does not see well and every cross-eyed child be examined at the age of three or four years. That the eyes of every child should be tested before he enters school and every year thereafter is also a recommendation of the Council.

Detroit School Children Have I. Q's Taken

A comprehensive program of psychological examinations has been developed in the public schools of Detroit under the direction of Prof. Chas. S. Berry, of the University of Michigan. Various group tests of general intelligence have been applied to all children in the city who are three years or more retarded in school work, and to all first grade children. The results of the work show that when pupils are classified according to general intelligence, all groups of children progress through the schools more rapidly. The need for differentiation in the course of study for the different types of ability is also shown.

N. C. Child Workers to Have Physical Tests

The North Carolina State Child Welfare Commission, which has power to prescribe rules and regulations for the issuance of employment certificates, has ruled that on and after March 1, 1922, a physical examination by a health officer or practicing physician, according to forms approved by the Commission, shall be required of all children under sixteen years of age who make application for employment.

The Ill-Used Organ, the Skin

INCIDENTAL to his studies on the therapeutic action of the sun, Rollier, of heliotherapy fame, recently made a strong plea for that much ill-used organ, the skin. We are prone to regard with a complacent superiority the way in which less enlightened races maltreat their bodies, but we ourselves would do well to imitate more closely certain less cultivated races with regard to the treatment of the skin.

The paramount importance of this organ cannot fail to be realized when we consider the complexity of its functions. In the first place it is an admirable protection against pathogenic organisms. It is the seat of cutaneous sensation, and an excretory organ of importance second only to the kidney. It is very closely concerned in the delicate mechanism regulating the temperature of the body; and, finally, as a vascular layer it plays an important part in the nutrition of underlying tissues.

By overburdening the body with clothes every one of these functions is interfered with to a greater or less extent. Rollier makes the frequent observation that the resistance of a patient against disease is closely proportional to his degree of pigmentation, and pigmentation does not take place under clothes.

Cutaneous sensation is much more delicate in the uncovered regions of the body, and it is equally obvious that heavy clothes, by preventing free evaporation, interfere with the excretory functions of the skin. The contrast between the tolerance to wide ranges of temperature shown by the face and hands and the extreme sensitiveness of the rest of the body gives some idea of the extent to which disuse atrophy of the heat regulating mechanism has taken place.

The Skin and Its Reactions

It is, however, our chief concern at this time to consider the functions of the skin as a surface organ: (1) It is the first line of the bodily defense, receiving all direct injuries from without. (2) It is the first tissue to be chilled or warmed by changes in external temperature, thus being the outpost for heat regulation. (3) Being the first organ to come in contact with other bodies, it thus becomes the intelligence department of the central nervous system. (4) It is the only tissue visible to others and is therefore available for attracting or repelling them, or for evading them by disguise. Although the skin is intimately associated with certain inner organs, it is chiefly a receptive organ and the relationship is primarily from without inwards.

It is evident that the well being of the worker will be greatly affected by any condition that interferes with the integrity of the skin. Numerous recent studies have to do with industrial dermatoses, the cause of many of these conditions being traceable to personal habits, subject to intelligent reform, or with environmental conditions, open to improvement through industrial hygiene.

The whole subject of dermatology is becoming more closely bound up with scientific medicine owing to the difficulty of separating the problems of skin idiosyncrasies from constitutional conditions, but on the whole, according to Dr. Arthur Whitfield, in the *Lancet*, the success of local measures compared to internal treatment is very striking. The expert in skin diseases is so often confronted with diseases of purely local origin, such as scabies, ringworm, etc., treated as some obscure constitutional condition that he is apt to become prejudiced against internal factors as a potent cause.

External Irritants

It is, of course, of the greatest importance to identify and remove the external causes of chronic skin irritations, especially in view of the readiness with which the primary lesion from whatever cause can become the location of later and more serious infections. Eczematous affections due to constant exposure to certain dusts, chemicals, or oils find their remedy in specific correctives directed against the existing condition. For instance, the preventive measures recommended by William J. McConnell against the industrial dermatoses among printers was, first and foremost, soap and water cleansing, afterward rubbing the hands and exposed parts with lanolin to supply a coating more or less impervious to the irritants.

Dr. Robert T. Legge, in the *California Medical Journal*, recently enumerated the occupational diseases of the skin and hands in California industry. Along with special correctives for specific irritants he emphasizes personal hygiene on the part of the workers, and the efficacy of soap and water cleansing. In several states which gave attention to special measures of health legislation, increased emphasis was placed upon the provision of adequate washing facilities for the workers, with a plentiful supply of hot and cold water, and pure soap.

Special Susceptibilities

The choice of soaps is particularly important. Certain skins which are deficient in natural oils require careful handling and the use of well milled, bland soaps. Our knowledge of the defensive reactions set up in the skin is not very complete, but it is assured that certain antiseptic preparations act as particular irritants to some skins and that this type of skin reaction to some particular kind of substance is more common than is generally recognized. The same remark would apply to toilet preparations and probably to ointments in common use. Inquiry will often show that outbreaks in skin disorders follow shortly after the application of some "new material" to the skin. Skin hygiene involves intelligent attention to individual susceptibilities, preventive measures directed especially to industrial irritants, the prevention of contact contamination as far as is reasonably possible, and especially to thorough and repeated soap and water cleansing of the skin, particularly of the hands.

The Pitiful Ballad of a Pop-Bottle

Sanitary Vers Libre

I am a pop-bottle
The sand of which I am made was purified by fire
And blown into a mold
When I reached the bottling plant
With several thousand of my fellows
I was washed and steamed
And filled with a beautiful red fluid
Made of water, syrup, and wind.
I was taken to a shop
Where little children came for
All-day suckers and other junk.
My beautiful red contents were poured
Into a glass which had just been used
By a kid with
A runny nose, fever, and a cough
The glass had previously been
Sloshed around by the hand of the proprietor
In a basket of water which was changed
At least once daily
The proprietor's fingers were (it must be)
It was not long before
The [illegible] germs were also
[illegible]
Every time I was [illegible] by [illegible]
I was [illegible]
But [illegible]
Once [illegible]
I took a sample of urine to a doctor's office:
[illegible]
Wi[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
wind
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
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Health Emphasis Has Given Direction to Health Trends

ACCORDING to the records pooled and published by thirty-seven leading American life insurance companies, 1921 was the healthiest year in the history of the United States and Canada. The six chief causes of death, in the order of their importance, are: Organic diseases of the heart; tuberculosis (all forms); Bright's disease; pneumonia (all forms); cerebral hemorrhage; and automobile accidents. Twenty-eight per cent of the deaths during the year are charged to the maladies of the more advanced years of life and, as they are caused by diseases which, because of "our present conditions of life are pretty sure to continue at high ratios among the causes of death," they are not to be made the special object of corrective effort by the insurance companies.

We are not inclined to concede the futility of effort to lower the death rates in the 28 per cent of deaths resulting from the degenerative diseases; but insurance companies—with whom improved health conditions register an immediate and tangible financial gain—are usually unwilling to gamble on a possible change in personal habits in cases involving extra risk and, therefore, focus their efforts in the direction of health betterment in the more hopeful 72 per cent who are taken off by tuberculosis, pneumonia, etc. Respiratory conditions are difficult, but not hopeless to combat, and it is considered that with a better understanding of the operating causes of the increased number of suicides these fatalities will be open to remedy. The mounting ratios of automobile deaths threaten a rating up in certain forms of protection,—a bad commentary on a condition that could well be socially controlled.

In the industrial field, particularly, insurance rates may be taken as a guide to the hygienic conditions surrounding different occupations. While the industrial physician is perhaps entitled to the credit of recognizing the gain in community health which would result from the hygienic reorganization of certain industries, the wide application of hygienic principles was made possible by the insurance companies on the basis of statistical knowledge of under-average lives. The service of workmen's compensation, usually emphasized from the angle of its distribution of the burdens of unanticipated contingencies, is really greatest in the resulting hygienic and safety work made urgent through the onus of compensation upon industry.

However much health betterment projects on the part of the employer are impugned on grounds of being activated by self-interest, economic considerations have served to make stable and universal the health protection of workmen. Individual inertia on the part of the public, and a current sense of a certain inevitableness of disease, may yet give way to self-instituted and self-maintained health programs in industry but, so far, except in isolated instances, self-help in health matters has required an outside stimulus. Progress is being made, however, and we still look to see the whole people translate into rules of behavior the laws of health which have been demonstrated as favorable to fuller and longer living.

Child Labor Conditions a National Problem

IN AN open letter urging the nation-wide observance of Child Labor Day on January 29, Mr. Herbert Hoover makes the statement that every child in the country who labors to the prejudice of health and education is a liability to the country. It is safe to say that wage-earning on the part of children in every case makes inroads on both health and educational development. Lengthening the period of youth tends to prolong the period of productivity. "The play time of youth is the 'prentice time for educating aptitudes in after-life." The child is so much in the grip of his environment and his increase of efficiency is so greatly dependent upon constant encouragement and stimulus that the fatiguing routine of unvarying tasks must involve for him a distinct menace.

Child labor lowers the child as a social asset of the future. "In times past at certain levels the child used to be regarded as a savings bank from which the parents could draw early; if children are nowadays regarded as investments, it is only on the understanding that they cannot yield a rapid return. Consciously or subconsciously the economic consideration lingers, but it has not the force that misery lent it in the worst days of unregulated industrialism. A new consideration has arisen. There is a heightened appreciation of the value of human life; the child is more precious."

Child labor as a national institution is not necessary; it is not training—notwithstanding certain statements recently made to the contrary; it is not advisable, nor held so except as opinion is influenced by self-interest. The institution of Child Labor Day is significant as indicating a change of sentiment on the part of the people from the exploitation of child life to its scientific nurture. Children under certain conditions grow old prematurely, or are "born old." It becomes a social duty to extend youth into the period of age rather than to deprive the child of time to grow up.

Controversy Obscures Facts in Compensation Decisions

THE problem of ascertaining and proving the existence of facts before a court of law lies at the basis of many of the compensation decisions. The province of the court is to determine the law on a given point, but how about the facts? The administrative or compensation boards have been appointed to meet this situation, to ascertain and determine upon the facts. They are given facilities and powers to investigate and hear controversies,—to make independent inquiries if necessary. But is their decision final? The courts of course have no facilities for getting information and material. They must decide on a case as it is presented to them unless a thing can be shown to be of general knowledge and one of which they can take judicial notice. How far, then, will they go in adjudicating with regard to the findings of the commissions? The practices of course vary in different states, but it is generally conceded that the courts will interfere to control abuse.

But what is abuse? Court decisions in Illinois seem less liberal in one case, while those of Michigan seem more liberal in another. The whole thing is in a state of flux. The discouraging feature is perhaps brought out most clearly in the case of the St. Louis Smelting & Refining Company v. Industrial Commission, 131 N. E. 617, reported in this issue of THE NATION'S HEALTH. If, as was brought out in the testimony, the employee in question actually had the blue gum line and other characteristics of lead poisoning, their existence should be shown with sufficient clearness to be incontrovertible. Facts of this nature can and should be definitely ascertained, and the fundamental issue would not then be obscured by moot questions of whether plumbism may be the cause of erysipelas, or sciatica an inevitable result of carious teeth, but concurrent conditions would take their position of relative importance, not as the controlling factors, which in this case as in others is the burden of proving the actual existence or non-existence of a disease or condition traceable directly to or "arising in or out of the employment."

Regulation of Bottling Plants—An Important Health Problem

THE Alabama State Board of Health in its recently issued bulletin promulgating the sanitary regulations governing the operation of bottling plants has adopted the policy of appending to each section a statement couched in simple language explaining and interpreting its *raison d'être*. An excellent plan this, since it clarifies the intent and purpose of the regulations both to those who must obey and those who will enforce them. It also makes apparent the "sweet reasonableness" of the rules laid down and secures a much desired cooperation.

The great increase in the number of soda water fountains and the use of charged beverages in general, makes it very important that the bottling industry be carefully supervised, since the vending of impure drinks constitutes a serious menace to the public health. The passage of the Eighteenth Amendment seems to have imbued the general public with a desire to drink something out of a bottle anyway, probably on account of the memories of the times when fluids coming in such containers at least created a temporary sense of beatitude and joy, but the soft-drinking public has yet to acquire that sense of fine discrimination which once was the earmark of the alcoholic devotee. Until such time as the people at large have learned to demand purity in their soft beverages they must be protected to the *n*th power.

Not only does the application of these regulations act to protect the consumer by insuring the purity of the raw products and their aseptic preparation for vending, the manufacturer is also guarded in a way against the financial losses which follow the use of inferior materials carelessly mixed and bottled. Quite as important is the protection against demands for cash settle-

ment and expensive legal processes which may be caused by the sale of a single bottle of an impure or dirty beverage. It is therefore imperative that bottling plants shall use a pure water supply, that the syrups used shall be free from gross foreign particles and other contamination and that the bottles themselves shall be thoroughly cleaned and disinfected before filling.

When a public water supply is used, it is as a rule safe, thanks to the very general advances which have been made along this line, but frequently the purification processes to which it has been subjected render it unsuitable for carbonation, hence many plants depend upon privately owned wells. The danger of these, if not subjected to regular examination and close supervision, is apparent.

The problems connected with the syrups and coloring matters are largely the prevention of spoilage by molds and the removal of sediment and other foreign matter. Mechanical cleanliness of all containers and piping used in handling them is an essential, as is also their compliance with the Food and Drugs Act.

In spite of all these precautions and the exercise of the greatest care in the preparation of carbonated beverages, the final product cannot be cleaner than the bottle in which it is dispensed. The cleaning and sterilization of bottles is therefore an important and painstaking process. The bottles must be soaked in a solution of caustic soda, soda ash, baking soda or similar chemicals to soften and remove gross filth and labels. The solution should have an alkaline content equal to at least 3 per cent sodium hydroxid and a temperature which never falls below 120 degrees F. Following the soaking process, the bottles should be brushed inside and out to detach any remaining dirt and then thoroughly rinsed until clean. They then should be sterilized by steam and filled, care being taken that the caps are clean.

Blindness in Children—Its Causes and Prevention

FIFTY per cent of the blindness of infancy is due to the preventable disease, ophthalmia neonatorum.

"Fifty per cent of the blindness of school children is due to parental venereal disease."

"The true figures for 'all ages' are seen to be, blindness from gonorrheal disease 2.5 per cent, from syphilis 9 per cent."

These quotations from the discussion on the cause and prevention of blindness before the Section of Ophthalmology at the last meeting of the British Medical Association by Mr. N. Bishop Harman drive home the fact that the children, as well as the women, pay. Mr. Harman's figures are derived from three sources, a home for blind infants, the schools for the blind and partly blind of the London Education Committee, and private case books, and relate to a total of 4,288 persons.

In the National Institute for the Blind, recently opened, sixty-three blind babies were examined and of these 31, or 49.2 per cent, were blinded by ophthalmia neonatorum.

In a group of 699 blind or partly blind school children whose blindness was due to injury or destruction of the cornea subsequent to surface inflammations, 367, or 52.5 per cent, owed their condition to ophthalmia neonatorum. In this same group, out of 90 cases of purulent conjunctivitis of later years, were two cases demonstrating forcibly the danger to other members of the community of babies suffering from gonorrheal ophthalmia. To quote Mr. Harman, "One is a girl whose motherliness was exercised towards an affected baby; she caught the disease; the cornea ulcerated and she is blind for life; the baby died. The other is a member of a family of three girls; the youngest, a baby, had the disease; the whole family contracted it, besides suffering from vaginitis; the eyes of one of the children were damaged sufficiently to necessitate her being educated in a blind school."

Of 413 children of school age, 284 of whom were blind and 129 partially sighted, suffering from inflammation of the anterior half of the eye, 369, or 89.3 per cent, were blinded by syphilis. This percentage does not take into account twenty-nine additional cases probably also caused by syphilis. If these were included, the percentage would be 96.3 instead of 89.3 per cent.

There were 349 cases of disseminated choroiditis, in which all the evidence went to prove that this condition in children is overwhelmingly syphilitic in origin. To be sure, this condition is not absolutely pathognomonic of syphilis, but most of these cases are caused by that disease; thus out of a group of which 294 were blind and fifty-five partially sighted, 210, or 60.1 per cent, were the subjects of congenital syphilis. To this infection is also attributed twenty-eight cases of congenital defects out of a group of 408. Recapitulating; out of 1,855 cases of school blindness, 19 89 per cent were due to gonorrhea and 33.31 per cent to syphilis, a total of 53.20 per cent caused by venereal disease.

In another group of 925 persons of all ages, mostly adults of all classes, 2.48 per cent were due to gonorrhea and 9.19 per cent to syphilis.

It will be noted that the incidence of blindness from these diseases drops progressively from infancy onward. This is probably due to the fact that a considerable number will have died before

reaching the next age group and also because other causes of blindness have begun to show themselves as age progresses.

The pitiful part of this wholesale blinding of little children is the fact that it is wholly preventable and therefore unnecessary. Furthermore, these results are brought about by no act of the children themselves.

The care and treatment of expectant mothers, the immediate treatment of the eyes of the newborn with silver salts, the prompt hospitalization and active treatment of all babies showing inflammatory conditions of the eyes, will go a long way towards preventing gonorrheal ophthalmia. Midwives and obstetricians should be required under heavy penalty immediately to report any inflammation of the eyes, no matter how apparently trivial it may appear and every health department should have at its disposal a sufficient number of ophthalmologists to diagnose speedily and rapidly treat any such cases. Equally necessary is a well qualified ophthalmologic surgeon on the active staff of every lying-in hospital.

The great desideratum, however, is the repression of the venereal diseases themselves. This means education, education, and still more education. Perhaps the great publicity which the anti-venereal disease campaign received during the war is bearing fruit already, but it seems a trifle early to expect marked results so far as the ocular infections are concerned. It may be pointed out, however, that in 1913, 24.17 per cent of blindness in a group of English school children was caused by gonorrhea, whereas in 1920 the percentage was 19.79, a fall of 4.38 per cent in seven years. This looks encouraging, but on the other hand, in this same group in 1913 the percentage of syphilitic inflammations was 29.70, while in 1920 it was 31.43, a rise of 1.73 per cent. This rise is probably more apparent than real and is due to the mathematical rearrangement due to the fall in the ophthalmia neonatorum rate.

The fact remains, however—the horrible, unescapable fact—that it is the little children who pay and the prevention and eradication of venereal diseases will go far toward reducing blindness among them.

The Relation of Mucus and Saliva to Oral Hygiene

IT IS a current phrase that "the clean tooth never decays," and within certain limits this is true. We have, however, assumed—perhaps unconsciously—that the only way a tooth can be maintained in a cleanly condition is by brushing it. While this is also in a way true, in view of the dietary which we modernists use, there is no doubt that Nature has a tooth cleaning brigade of her own which if given half a chance functions fairly well. In all probability this process goes on continuously in all mouths more or less efficiently and tooth brushing, and the various other processes of accomplishing oral hygiene artificially, merely aid and supplement this natural function.

When the dietary consists of semifluid mush, it simply receives a few perfunctory squeezes from the teeth and a few general directions from the dorsum of the tongue and the hard palate and is on its way. Pre-masticated pabula like porridge, custards, and similar foods are not chewed and hence do little in the mouth except to mingle with the mucus stagnated on the teeth. This compound, unless removed artificially, becomes infiltrated with the salivary salts, thus forming tartar, or it undergoes lactic acid fermentation with decalcification of enamel and subsequent dental caries. If, on the other hand, the food contains fibrous, tooth-resisting substances, there is a stimulation of the masticatory processes and the teeth are scoured by the muscles of the cheeks, tongue and lips which, with the grinding movements of the lower jaw, press the fibrous portion of the food against the teeth and mechanically clean them. Thus it is found that if only one side of the dental arch is used, the other accumulates mucus, tartar, and food detritus and is quite apt to become carious. The tearing and macerating process which is accomplished by complete mastication renders the food semifluid, hence the lubrication of the bolus which was formerly believed to be the function of the mucus becomes superfluous and the alkalis of the saliva largely prevent the precipitation of caseous mucin and the formation of mucus placques.

As for the ptyalin itself, it is now believed that its function is not the digestion of cooked starch in the stomach into achrodextrine and maltose as was formerly taught by the older physiologists. Modern students now hold that its function is rather that of an important adjuvant to oral hygiene by the digestion of carbohydrates left in the mouth and in making the mucus alkaline. Further, the salivary corpuscles may act as oral scavengers. The acid reaction of the saliva during the resting period may be important because of the fact that it favors the action of the liquefying bacteria and its salts seem to have a restorative value by rehardening the superficial enamel.

The diet plays another very important rôle in oral hygiene through its accessory factors. Perhaps as striking an example of this as may be quoted, is the dental change which is seen in scurvy, a typical deficiency disease, and many

observers believe that devitamined food exercises a very deleterious effect on the dental mechanism in many unclassified conditions. Conversely, it has been stated very recently that the excellent teeth of the American Indians who have not adopted the diet of the white man may be accounted for by the high vitamine content of the many plants and shrubs which they chew or use as infusions.

So long as our dietary contains so much pap and dead accessory factors, we must place our great reliance on the tooth brush, but this useful hygienic instrument may be greatly assisted by the exercise of the teeth on more resistant foodstuffs.

An Appraisal of the Value of Athletic Sports for Girls

IT IS remarkable that in an age in which so much attention is being given to the conservation and upbuilding of health that there should still be left any remnant of Victorian superstitions regarding the ill effects of exercise upon girls—exercises which we encourage in their brothers. Yet there are many mothers who believe that their daughters are constructed of a different protoplasm from their sons, women who believe in the deleterious results of fresh air upon the growing girl, and regard a crop of freckles as a catastrophe. Such mothers forbid their daughters to engage in games and limit their exercise to the syncopated toddle. There is no quarrel with the rhythmic exercises of the ball room, which as conducted nowadays certainly bring into play the entire musculature, but they can never take the place of games in the open air. To be sure, the average girl today takes much more exercise than did the debutante of a decade ago, but even at that she does not engage in games to the extent of the average boy.

There is something in games besides mental diversion and muscular development. Drills induce concentration, obedience, and action in coordination with others. They are also of value in the correction of postural defects, but they lack the inspiration of the competition which is an integral part of such sports as tennis, hockey, and la crosse, which produce a mental alertness, a sense of fair play and a realization of community of interest not to be cultivated in any other way. Walking, cycling, swimming, snowshoeing, and skating are admirable forms of sport, but unless they can be conducted in competitive matches, they lose much of their health value. A cross-country race is an exhilaration; a cross-country walk, just to be walking, is a deadly bore. The one is a joy which is reflected throughout the whole body; the other simply results in fatigue.

Girls may engage in almost any sport with great profit. It is doubtful if they should box, on account of the harmful effects which may result from a blow on the breast, and they are not heavily enough built to engage in real football, but with these exceptions there are practically no games which they may not play with great profit.

It used to be thought, and the superstition still is widespread, that menstruating girls cannot bathe. Many still believe that they cannot engage in games during this period. It must be admitted that at such times their coordination is below par—this is particularly noticeable in women golfers—but there is no need for them to abstain either from baths or athletic pursuits at this time. Several physical directors of schools for girls have observed that girls who go in for games have fewer menstrual troubles than those who stay on the sidelines.

To be sure, certain girls, just as certain boys, should not indulge in violent or prolonged exercises. Enlarged thyroids, bad hearts, and the like all preclude; but, taken by and large, the girl who plays games has more moral, mental and physical endurance than those who do not. Neither boys nor girls should be subjected to severe physical strains, but there is no reason why in games of speed and skill, girls should not be the equal of boys and, making allowance for difference in stature, they should be as strong as their brothers. For both there is the danger of overfatigue, overtraining, and overattention to games at the expense of studies, but these are easily controlled and there is no more reason why athletics should coarsen their social fiber than that equitation should make them "horsey."

The Value of Toxinantitoxin in Preventing Diphtheria

IT IS unfortunate that in spite of the specific action of diphtheria antitoxin on diphtheria toxin, the mortality from diphtheria is appallingly high. Whether the fault lies with the physician who neglects to detect the disease in its early stage or with the parents who neglect to call a physician early in the disease, the fact remains that something should be done in order to lessen the mortality from diphtheria.

The work done by Park and Zingher on toxinantitoxin holds out a ray of hope that in time diphtheria will not only be cured but also prevented. Toxinantitoxin seems to have a distinct value in preventing diphtheria. Whether or not the sweeping claims made by the New York Board of Health will be substantiated, there is an

efficacy in toxinantitoxin which deserves consideration on the part of various boards of health and of practising physicians. It is to be regretted that so far nearly all the information we possess on toxinantitoxin has been furnished by the New York Board of Health. While no one can doubt the sincerity, honesty, and accuracy of the persons connected with the research department of the New York Board of Health, one likes to see work of this nature corroborated by persons aside from the originators and promulgators of a certain idea.

Outside of an unfortunate accident that took place in Dallas, Texas, due most likely to some mistake in the preparation of the toxinantitoxin used, no evidence has come forward that toxinantitoxin has any deleterious effect on the patient. There is, therefore, good reason to employ the preparation in public schools and in infant asylums in order to give the method a thorough trial. We must not make the mistake that some physicians made at the time antitoxin was introduced by Behring. As is well known, some of the very best medical men in the world have opposed antitoxin and thereby permitted the death of many children. As long as the preparation seems to be harmless and to a marked degree effective, it should be employed by health authorities.

Of course no preparation of the type of toxinantitoxin should be commercialized without the proper supervision. There should be a unit of strength for the preparation just as there is a standard for diphtheria antitoxin, tetanus antitoxin, and various other sera. The average physician does not want to use any preparation that may have the least toxicity in it unless it has been fully tested by health authorities. Meanwhile, one must not be misled by the literature put out by certain irresponsible persons condemning toxinantitoxin.

Sheffield, England, Employs New Method of Sewage Treatment

RUMORS have been current for a year or more in regard to interesting developments in the art of sewage treatment at the city of Sheffield and definite data are at last at hand in a paper presented by Messrs. John Haworth and F. W. Hodgkinson before the Forty-eighth Annual General Meeting of the Institution of Municipal and County Engineers at London, June 15-18, 1921. The fundamental principle in the work of these investigators was the assumption that the air supply in the ordinary process of activated sludge treatment serves the double purpose of agitation and aëration, and that the aëration need in itself is relatively small. In view of the technical difficulties and the expense involved in the supply of a large volume of air in the form of minute bubbles, Messrs. Haworth and Hodgkinson attempted to treat sewage by mechanical agitation in the presence of previously activated sludge, relying on surface absorption for the oxygen supply. Experiments begun on a small scale in 1916 were so successful that a large plant was completed in 1920 and had been in operation when the paper was presented for more than five months. The plant consists of a single large aëration tank about two hundred feet long, seventy-five feet wide with a capacity of approximately three hundred fifty thousand gallons. It is divided by longitudinal walls into eighteen compartments four feet wide, forming when taken together a continuous channel 3,544 feet long. At the center of the tank there is in each compartment a paddle wheel ten feet in diameter which at a rate of fifteen revolutions per minute produces a minimum velocity of 1.7 feet per second in the channels. The sewage thus circulates round and round the channels with a constant inflow at the end and outflow at the other.

The outflowing sewage passes through three small retention chambers where a portion of the sludge settles out at reduced velocity and returns directly to the aëration tank; and thence the effluent passes to three settling tanks of the Dortmund type. Amounts of sewage varying from 250,000 to 500,000 gallons per day have been treated in this plant and although the sewage is exceedingly strong, the results have been most promising. Nitrification is not pronounced, but the suspended solids have been reduced to a low figure and the effluent has been consistently nonputrescible.

It would seem that this work at Sheffield is a contribution of the first importance to the art of sewage treatment, the first really fundamental improvement that has been made since the activated sludge process was worked out at Manchester. The results obtained at Sheffield, and elsewhere where this process must no doubt be tested, will be watched with the keenest interest by sanitary engineers.

Pirquet Blazes Trail for New System of Nutrition

POSSIBLY the latest word in infant and child feeding was brought out by Von Pirquet and his associates of the University of Vienna. He advocated and used a system of feeding whereby large numbers of children could be supplied with the necessary food according to their state of nutrition and whereby malnutrition could be remedied on a large scale. The system used by

Pirquet is based on measurements of the sitting height of the child, a unit that was found many years ago to bear a direct relation to the intestinal area. Pirquet standardized it both theoretically and practically and has made use of it on a large scale. Physicians who have recently returned from Europe claim that had it not been for Pirquet's system of feeding, Hoover's work might possibly have been a failure as far as European children are concerned.

Recent suggestions made in medical literature to employ the Pirquet system of feeding in this country have met with favor in some quarters and with disfavor in others. The great opposition to the Pirquet system is that we would have to undo the present system of nutrition employed in this country and learn a new formula, something that is not accomplished very easily. Time will tell whether or not the adoption of the Pirquet system is practical in time of peace.

Whatever the outcome of further study in the subject, Pirquet deserves much credit for calling attention to a new system of nutrition. His work shows that the possibilities for research in nutrition have not been exhausted and that men with great minds and proper training may in time evolve a system of feeding that will be both accurate and simple.

Selling Health Protection at Cost by Cooperative Effort

AS A RESULT of a report by the Committee to Study Community Organization for Self-support of Health Protection for Mothers and Young Children, a small district has been selected in New York City in which the Maternity Center Association, the New York Diet Kitchen Association, and the Henry Street Visiting Nurse Service by special arrangement for joint service are prepared to furnish a health-protection and visiting nurse service to residents of that district at six dollars per person per year. The project required the organization of the "Citizens Health Protective Society," composed of residents of the district, which purchases the professional health service from the nursing organizations for the benefit of its membership.

The service will include supervision of pregnant mothers, assistance at confinement (other than doctor's services), baby health service for children under two years, including regular examination, weighing and inspection, instruction of mothers and home visits; health supervision of children from two to six years, including health and nutrition classes and special advice to mothers; and visiting nurse service for sick persons of all ages. It is definitely understood that no advice or examination will be made without consent of the family physician.

The citizens' society is democratically managed and is in charge of all finances. Cooperation has been offered by the many churches, schools, and social groups in the district and the plan is expected to be self supporting and a genuine community health service. The cost of the service is based on the 1920 expenditures of the three participating associations and on the general averages of birth, death, and sickness rates. As the experiment develops the citizens' committee may wish to set up a sales department where members can buy collectively material for mothers, infants and young children, also maternity and sickness supplies.

The project is in one sense an insurance scheme, managed entirely under local auspices, with members bearing the entire cost. The citizens' society merely contracts with the three organizations for the health protection and sickness care of its members. The plan offers untold possibilities for public health development which should be evidenced in the form of declining general death and infant mortality rates and reduced morbidity from childhood contagion. Health education of the public will be materially advanced and the consideration of social health insurance would naturally follow. Miss Ella Phillips Crandall is director and the project is fully outlined in the *Henry Street Nurse* of August and September, 1921.

An Active Campaign to Increase Membership

THE American Association of Industrial Physicians and Surgeons has assumed the task of doubling its membership, the minimum objective if each member secures one recruit. Every member of the Association, being in the active practice of industrial medicine, should be full enough of his mission to render this disinterested service. There is no field which offers a greater variety of open problems to interest scientific curiosity, none in which intelligent application yields more spectacular achievement, and none which promises more in the way of broadening activities. More than twenty-five hundred physicians in the United States are specializing in industrial medicine. The demands of the field call for collective effort and for scientifically directed activities. The man who would credit the organization or whose work is a credit to the cause should identify himself with the American Association. It is desired that the men whose work renders them elegible will make early application for membership.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

Editors for the Association

THOMAS CROWDER, M.D. WADE WRIGHT, M.D

Officers of the Association

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News Regarding the Membership Campaign

BY WILLIAM ALFRED SAWYER, SECRETARY, ROCHESTER, N. Y.

WE ARE out for new members. Every day the mail brings us additional prospects. Are you doing your share?

What we propose to do is to tell every physician throughout the country who is eligible to membership in the Association what such affiliation may mean to him personally, what his duty is in the way of personal contribution to the medical knowledge in this special field, what it means in furthering preventive medicine and in raising standards of medical practice.

Make this membership campaign a personal affair. Well organized committees can accomplish much in the way of propaganda, but nothing that compares to the dynamic interest held by the individual when he has done his personal share of the work. Muster your best arguments, tackle your closest associate, or the man you know to be doing creditable work outside the fold, and bring them into the advantages of full membership.

A gain of twenty five has been made since September, yet the campaign is just well under way. Things are humming around the Secretary's office these days, but it is a mild situation compared to the activity we hope to stir up during the month of February. We want every member "up on his toes," pushing this matter for all he is worth. Nothing succeeds without effort. Once we get a sizable membership, the usefulness and value of this Association is going to progress rapidly. We want every individual surgeon in it. Let's all get busy and carry the message to our colleagues. All *you* need to do is to secure *one* new member; but many will doubtless want to do more. Some have done more already. How about you?

New Membership List

Dr. R. V. Harris, 19 Gordon St. E., Savannah, Ga.

Dr. Edward von den Steinen, National Lamp Works, Cleveland, Ohio.

Dr. S. M. Coryell, 8113 Woodland Avenue, Cleveland, Ohio.

Dr. D. B. Wells, 580 Asylum Street, Hartford, Conn.

Dr. R. B. Crain, Eastman Kodak Co., Rochester, N. Y.

Dr. B. J. Slater, Eastman Kodak Co., Rochester, N. Y.

Dr. E. W. Reeve, Equitable Life Assurance Co., N. Y. City.

Dr. L. A. McAlpine, Portsmouth Cotton Oil Refining Co., Portsmouth, Va.

Dr. C. A. Swan, Halle Brothers, Cleveland, Ohio.

Dr. T. Lyle Hazlett, Westinghouse Electric Company, Pittsburgh, Pa.

Dr. Douglas T. Davidson, General Chemical Co., Marcus Hook, Pa.

Dr. Sterling C. Basney, Pennsylvania R. R. Co., Glenolden, Pa.

Dr. James F. Bowen, U. S. P. H. S., St. Louis, Mo.

Dr. Henry C. Schorr, 3707 Ellis Avenue, Chicago, Illinois.

Applications for Membership

Dr. L. St. John Hely, Richmond, Cal., recommended by Dr. U. S. Abbott.

Dr. J. S. Alley, Midvale, Utah, recommended by Dr. A. J. Hoosomer.

Dr. C. E. D. Lord, Ely, Nevada, recommended by Dr. R. A. Bowdle

Dr. T. O. Boyd, E. St. Louis, Ill., recommended by Dr. L. G. Harney.

Dr. W. F. McNary, E. St. Louis, Ill., recommended by Dr. L. G. Harney.

Dr. Clarence H. Kilker, Cincinnati, Ohio, recommended by Dr. Carey McCord.

Dr. H. S. Reynolds, South Manchester, Conn., recommended by Dr. Robert Knapp.

Dr. M. A. Austin, Anderson, Ind., recommended by Dr. F. L. Rector.

Dr. F. G. Barr, Dayton, Ohio, recommended by Dr. F. L. Rector.

Dr. D. Brougham, Syracuse, N. Y., recommended by Dr. F. L. Rector.

Dr. A. D. Chattaway, Ilion, N. Y., recommended by Dr. F. L. Rector.

Dr. P. M. Cort, Chicopee, Mass., recommended by Dr. F. L. Rector.

Dr. G. G. Davis, Chicago, Ill., recommended by Dr. F. L. Rector.

Dr. H. W. Sutcliffe, Chicago, Ill., recommended by Dr. F. L. Rector.

Dr. W. J. Denno, N. Y. City, recommended by Dr. F. L. Rector.

Dr. S. W. Hurdle, Winston-Salem, N. C., recommended by Dr. F. L. Rector.

Dr. E. P. Lacey, Bessemer, Ala., recommended by Dr. F. L. Rector.

Dr. James Jefferson, Johnstown, Pa., recommended by Dr. F. L. Rector.

Dr. H. R. Owen, Philadelphia, Pa., recommended by Dr. F. L. Rector.

Dr. D. G. Smith, Schenectady, N Y., recommended by Dr. F. L. Rector.

It is with regret that we announce the resignation of Dr. Edward Gotchy of Chicago, who on account of a protracted illness has been compelled to give up industrial work.

Length of Work Day and Industrial Health

The Personal Equation is Always the Variable that Upsets Stereotyped Calculations

By REYNOLD A. SPAETH, Ph.D., Associate in Physiology, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

SCIENCE has been called the modern man's religion. When he finds himself entangled in a particularly complicated problem, instead of consulting Aristotle or the Scriptures, he appoints a committee to gather statistics. This expedient is frequently successful. There is something formidable about an array of figures. Graphs and charts give a dazzling impression of irrevocability and expert knowledge, especially when backed by a dozen integration symbols. Whether the particular problem can really be solved by the machinery of science is rarely asked.

The question of the length of the industrial work day is a striking illustration of the merciless application of scientific method.

Apparently convincing figures have been gathered to prove the greater efficiency of the twelve, ten, eight, or even six hour day in various industries. The key to a better understanding of the situation seems to lie in that word "efficiency." The moment we apply the efficiency criterion we may ask: "But efficient from what viewpoint?" If you chance to be an operator or a production manager or a stockholder you naturally concentrate on output and profits. Or, again, you may be an active trade unionist or a member of some cooperative society, in which case your primary interest lies in high wages and an attractively low sale price to the consumer. In other words, "efficiency" is purely a scientific problem when applied to the behavior (i. e., power consumption, etc.) of inanimate machines, but the moment it involves the health and happiness of human beings a moral factor is introduced and the problem passes from a purely scientific to a social-ethical level where science cannot and dare not follow. The failure to distinguish clearly between these two levels—the unmoral and dispassionate scientific level and the social-ethical one, has led to a vast amount of controversy and misunderstanding. An illustration will clarify the point.

Last year the Women's Joint Legislative Conference asked a certain association of merchants to endorse an eight hour bill. The Committee of the merchants' association insisted that the only basis for endorsement by them would be the proof that the health of women was disastrously affected by nine hours of work and would be protected by eight hours, and that production would be as great and as cheap in eight hours as in nine. Those of you who have had experience with physical examinations will appreciate that exact evidence of actual injury resulting from one extra hour of work per day is a hopeless thing to prove. We have troubles enough trying to run down that elusive and academic individual, the "normal" man or woman. Human variation is far greater than the merchants' committee realized. The work day problem to them was purely a question of cost of production. The illustration is of interest chiefly in showing how completely we may miss the real issue and yet how safe and reasonable we feel, by blinding our eyes with the glamour of scientific method.

No precise rule of universal application has been formulated to determine the nervous fatigue of the workman, nor does the degree of fatigue usually denote a given amount of work done.

Intense effort can provoke fatigue before any considerable amount of work is done. Prolonged hours of labor may merely distribute a fixed amount of energy over a longer period, or increasing inertia from prolonged effort overcome apparent advantage in the longer day.

To attain the maximum yield from labor is to proportion the elements of work to the physiological requirements of the workman. The speed of economical work is determined by precise and specific studies in each industry or, it may be, in each shop.

Another example of the confusion that arises from concentrating on the statistical aspects of the problem is afforded by the recent publication of the United States Public Health Service *Bulletin* No. 106. In this case a study was made of the relative efficiency of an eight and a ten hour plant. The verdict was in favor of the eight hour system. Efficiency, as usual, was undefined. This bulletin has called forth a storm of criticism. In a special report (No. 14) the National Industrial Conference Board believes to have demonstrated without question that "the conclusions (of Bulletin 106) are essentially unscientific and not justified by the data offered" since the two plants are not fairly comparable; and the basis of experience is too small to justify comprehensive conclusions applicable to industry in general.

In reviewing the Public Health Service Bulletin in the *Journal of Industrial Hygiene* Dr. Drinker asks:

(1) Can a comparison of two factories under different managements (and at different wage levels, we may add) give any valid information as to the proper length of the work-day?

(2) Is it sound procedure to neglect practically entirely the medical and sociological aspects of a problem so important and so pretentiously undertaken as the one in hand?

The presentation strikes one more as a well organized argument for eight hours of work than as a thoroughly dispassionate display of the facts at hand.

The criticism and counter-criticism may be followed further in Miss Goldmark's response to Dr. Drinker's review in the *Journal of Industrial Hygiene*. You will also find there a warm controversy between two of the Government's scientific investigators, one of whom comes to the defense of the worsted ten hour plant where he is or has been employed. I mention these matters in order to call attention to the exceedingly live nature of the problem.

The question now arises as to why there should be such a lack of agreement among the various investigators. If the problem of the "proper" length of the work day were really open to scientific proof one way or the other, such proof ought by this time to be forthcoming. In my opinion the difficulty is a fundamental one. We

have been fooling ourselves into believing that by trundling out the impressive paraphernalia of science we must necessarily arrive at the correct conclusion of the larger question. It is our old problem of the scientific vs. the social-ethical level. Evidence on the scientific level will not prove the rightness or wrongness of a problem which strikes at the very foundation of our social structure. We Americans are hard headed, practical people. We want to be shown. So we turn our modern trick of gathering statistics. I am convinced, however, that our friends, the British trade unionists, are ahead of us when it comes to understanding the real nature of the work day problem. Just thirty years ago when the eight hour movement was a more live issue in England than it has yet become in this country, Sidney Webb wrote as follows:

The demand for shorter hours of labor has arisen among the working classes, not so much from the conviction that their present hours are injurious to health—though that in many cases is the fact—not so much from the theory that shorter hours mean higher wages—though that theory is in the main sound—but from the strongly felt desire for additional opportunities for recreation and the enjoyment of life.

I should not care to leave the impression that science has nothing whatever to contribute to the work day problem. Indeed I believe we can even go so far as to predict quite accurately what the application of scientific methods will demonstrate. Considered from a straight production viewpoint there will certainly be figures proving the advantage of shorter hours in some processes and industries, and of longer hours in others. These figures will vary from plant to plant and from process to process. One of the chief determining elements will be the percentage of human contribution, the "handling time" of the Taylor school. Long hours are certainly an advantage (again from the production viewpoint) where we deal with 90 to 100 per cent machine processes. Such jobs cannot be speeded up and shortening of hours means decreased output as Dr. Vernon clearly showed in his final report of the Health of Munition Workers Committee. Maintenance of production must here be secured either by additional machines or by a shift system. This problem, as Drury has recently shown, can be laid squarely across the shoulders of management.

Even in the most painstakingly careful studies like that of Ernst Abbé at the Zeiss Optical Works in Jena—which comes as near being really scientific as any that has been made—it is difficult or impossible to evaluate the contributions of actual shortened time and increased efficiency of plant methods. And even more elusive is the psychological influence of shortened hours on the workers themselves.

Work and Plant Production

Science thus offers no answer to the general question, what is the proper length of the work day. If you ask: "Can I shorten hours in my plant and maintain production and profits and perhaps release the will to work among my employees?" science stands ready to help. The tacit admission on the part of a plant management that greater facilities for recreation and relaxation for its employees may be a sound long time investment is virtually a recognition of the larger social-ethical problem. How completely this larger problem remains unrecognized is strikingly illustrated by a careful reading of the National Industrial Conference Board's Research Report No. 32 on "Practical Experience with the Work Week of Forty-Eight Hours or Less." At first blush one gets the impression that the work week of forty-eight hours or less is a failure, for in 87 per cent of the establishments studied the weekly output of workers decreased. A closer study of the facts shows however, that production was frequently determined by the speed of automatic machines or working conditions were not what they might have been, resulting in a large turnover. It is a simple thing to blame the failure of a shortened work week upon the lessened hours of labor. In reality the fault frequently lies with the management or employees or with both.

In spite of a widespread appreciation on the part of labor of the desirability of a shorter work week, the basic rather than the straight eight hour day has received by far the greater support. The basic eight hour day permits overtime at time and a half wages. In other words, by failing to endorse the straight eight-hour day, as was the case at a recent convention of the American Federation of Labor, labor has weakened its whole position. The advantages of the basic eight hour day are purely economic. It provides a mechanism for increasing wages but fails completely to contribute towards the solution of our fundamental problem. In some quarters the inconsistencies of labor's position are beginning to be appreciated. Mr. Hillman of the Amalgamated Clothing Workers of America has been steadily pushing ahead in the direction of a straight eight hour day. He, for one, realizes the advantages of eliminating overtime.

This points out certain tendencies that have crept into our thinking on the work day problem. Some may wonder what bearing these remarks have upon industrial health. The relation is fundamental. Industrial health is not limited to human accident and illness statistics. There is a larger health of industry itself measured in terms of stability and clear thinking. The maintenance of this larger industrial health is our greatest safety problem. It challenges the best efforts of labor, capital and management.

Cost of Health Service in Industry

Various studies have been made of the cost of health service in industry, the last being that of the survey of the industrial medical field in Cleveland, O., in 1920. The present pamphlet published by the National Industrial Conference Board, May, 1921, records results largely from plants with organized medical departments. In the plants reporting a total of 764,827 workers were employed. Two or more plants in each of the twenty-three industries submitted reports.

The report states that the earliest recorded effort concerning the health supervision facilities in industry was made in 1879. Only nine firms reporting had health supervision previous to 1900, while 164, or 86.7 per cent established the service in 1910 or later. The largest number introduced it in 1916, and the next largest number in 1919.

The average cost as shown by the investigation ranges from $1.84 per employee per year in the tobacco industry, to $24.40 in the mining industry, averaging for all industries reporting $4.43 per employee per year.

There has, of course, with the development of health supervision, come a much greater increase in the scope of work. While medical service was primarily developed to care for industrial accidents, the work today goes into all the departments of the plant and extends even into the home and community life of the workers.

The report covers the cost, the staff organization, equipment and the scope of work.

Contagion in Industrial Establishments

Prevention Connotes Measures Exactly Fitted to the Direct Causative Factors

By D. L. RICHARDSON, M.D., Superintendent, Providence City Hospital, Providence, R. I.

VARIOUS industries, particularly large mills and factories, are becoming interested in the health of their employees. It can hardly be termed wholly an altruistic move but is plainly an indication that business men realize it pays to keep their employees well. It is certainly a commendable movement viewed from any standpoint.

The control of infectious disease resolves itself into tracing individual clinical cases, and the detection of carriers. The more intimate the contact of public agencies with the general population, the better will be the reporting of frank and suspected cases of contagious disease. To such agencies will go families suffering from mild illnesses for which they would not consult a private physician, and it is these mild cases which play so significant a part in the spread of disease. For this reason the public health officials welcome the employment in industries of physicians and nurses.

It is quite a common practice for the larger establishments to have a doctor or nurse, or both, to look after the health of the employees, a wise provision which should be universally adopted. Rather than being a financial burden, it becomes a distinct asset to any company to keep its employees well, for lost working days of employes is often a serious handicap to the company, particularly in the care of skilled mechanics and supervisors.

It is not the place to more than mention here the importance of fresh air ventilation and safety devices.

Safe water for drinking purposes should be distributed so that employees can reach it without too much loss of time. No common drinking cups should be tolerated. Either drinking fountains or individual cups should be supplied at a faucet or tank.

Sufficient toilet facilities, preferably with split seats, should be provided. The toilets should be provided with lavatories without plugs and the water turned on by a foot or knee device so that one can wash in running water. If hot and cold water are supplied they should be piped so that both are delivered through a common spout. The common cake of soap should be replaced by a liquid soap which makes a good lather and is delivered from a container with an escape valve in the bottom. The hands should be dried on paper towels or on individual hand towels. All processes of manufacture which require putting things into the mouth should be prohibited. Offices should have moisteners for stamps and sealing envelopes and notices should be posted advising employees to avoid putting anything in the mouth except food and drink, and these with clean hands.

Ideally all employees should be examined for infectious disease before entering upon their duties. This recommendation is aimed particularly against tuberculosis and venereal disease. Such a procedure is hardly practicable although something may be done along this line. It is hard to exclude tuberculosis subjects yet it should be done if the case is an open one, and the time is not far distant when the employees themselves will insist upon it. Less compunction need be exercised in excluding those infected with venereal disease and the importance of syphilis stands first. This disease because of the throat and mouth and skin symptoms is a menace to other employees, any of whom may be innocently infected.

The doctor and nurse should have regular hours and to them should be sent all who are ill or not feeling well. Most conditions found will not be infectious but when they are the doctor should be ready to recommend what should be done to protect the rest. An employee sick with an infectious disease should be excluded until he is well, or until the physician feels it safe for him to return. It is of much value to have the nurse visit the homes of employees who are out more than two or three days, to ascertain whether the employee is sick and the nature of the illness.

When an infectious disease does develop the factory doctor should inspect daily those in most intimate contact with the sick person that he may be able to exclude any others who are infected, at the earliest possible moment. These examinations should extend over the incubation period of the disease in question.

Smaller establishments may have a nurse alone but she should be under the direction of some physician who may be called for advice. Several shops may combine and have one doctor and nurse.

Factory help need constant health supervision because of the nature of their work and the character of the employees.

Cooks, waiters, bakers, those who dispense drinks should all be licensed and examined at least twice a year, a license card issued for a six months period, this examination to be done by the health department with painstaking care. Each applicant should be stripped to the waist so that the chest, abdomen and skin may be examined, as well as the eyes, mouth, and throat, chest, etc. The men should be examined for venereal disease routinely, and the women if there is a suspicion. It has been found that this examination, if courteously and well done, and particularly if the physician points out any physical defects which need remedial measures, these employees will not object. They will appreciate that they are getting a little free medical advice which may be of much importance to them.

In some places it is wise to make a Widal test on every one applying for license. Urine and feces should be examined if the medical history gives an account of typhoid fever, or if the Widal is positive.

The routine Wassermann is probably not necessary. However, it should be taken whenever any suspicion exists of infection. All those without lesions may be allowed to work as long as they are under the constant observation and treatment of some physician or clinic.

Roentgenology in Brazil

The Ministry of Public Instruction in Columbia has arranged an x-ray course which will include technic, diagnosis, and treatment. There will be hospital facilities for use of the students. Dr. Richard Andrés will have charge of the work.

Accident Prevention from a Medical Viewpoint*

By W. H. LIPMAN, M.D., Medical Director, Swift & Co., Chicago

THIS is an age of prevention—prevention of disease, accidents, strikes, unrest, panics, war, waste, profiteering, and famine. Prevention is the slogan of the day. The superiority of the prevention of all things undesirable as compared with their elimination or the correction of their evil results, is the outstanding teaching of the last three or four decades.

The old adage that "an ounce of prevention is worth a pound of cure" is too mild for these times; that a grain of prevention is worth more than a ton of cure would more nearly express the spirit of the day.

Medicine of today is largely a science of preventing disease. When the cause of a disease is discovered, more energy is devoted to finding means of preventing it than is devoted to the attempt to develop a cure for it. Perhaps the best evidence that prevention of disease is looked upon as of greater importance than the cure is the fact that for the past ten or fifteen years the activities of the Federal, state, and municipal health departments have been very greatly broadened. Their work has become much more comprehensive. Another indication equally as convincing of the value of prevention is the great development, in the past decade, of industrial medicine, one of the newest but by no means the least important of the medical specialties, which has already established for itself a permanent place among the branches of medicine.

Constructive Work in Industry

Industrial medicine is almost entirely a preventive undertaking. It aims, first of all, to prevent placing the wrong man at a given job or giving the wrong job to an applicant for employment all of which is to the benefit of the applicant, the working force and the public. Second, it attempts to prevent the spread of illness among employees either by periodic physical examination or by early treatment of sickness. Third, by promoting efficient care of accidental injuries, it prevents complications and reduces disability to a minimum. In reality this is nothing more or less than safety work; safety for the employee; for his family, for the employer and for the public.

It is not necessary these days to apologize for, or to attempt to prove the value of, safety work or what it has accomplished in the past quarter of a century. Every person who reads, every person with his eyes and ears open knows that lives have been saved, that suffering has been spared and economic waste diminished.

From time to time, tables are issued to show the economic and monetary value of safety work. We are shown that so many lives have been saved, therefore, since every life is considered to be worth a certain number of dollars and cents to the community, the country has been saved a certain sum of money, and disability is figured on a corresponding basis. While all this is very impressive, I believe it does not commence to tell the story. Only those who are actually and actively engaged in safety and accident prevention work and industrial medicine fully appreciate what an accident means to the man who is injured and to his family, and what prevention of accidents really amounts to.

When we speak of safety work, mechanical safety appliances immediately come to our mind. Many of us look upon safety work as merely a matter of guarding machinery and tools, railings for stairways, or signs for crossings, and a thousand similar devices. All these have their place and are extremely valuable in preventing accidents, but to my mind, it is one thing to provide these and quite another and more important thing to imbue your men with the will and the urge to use them. Unless you can instill in the minds of the workmen a belief in you and your safety work, your mechanical appliances will be of little value. Of course, one way to induce men to use safety appliances and to be careful at their work is to educate them to the value of safety by means of signs, placards, booklets, and safety campaigns and rallies, and unquestionably they all help, but this is not the most important phase, in my opinion, of safety work. The men must be convinced that the company is in earnest in all its safety work and that it is undertaking it, first of all for their benefit, and secondarily, for the advantage of the company; in other words, for their mutual good, and it is to the best ways and means of accomplishing this, as viewed from the medical department, that this paper is devoted.

Everyone agrees nowadays that the foreman is looked upon by the workmen as the representative of the company, and whatever he does is interpreted by them as the will or policy of the company. Next to the foreman in the eyes of the men, the plant doctor represents to them the opinion of the company in matters touching accidents and illness. Therefore, success of safety work depends largely on the conduct of the foreman and the doctor, in the way accidents are prevented and handled after they occur. We cannot expect men to believe in safety work if they find their foreman never shows any signs of interest in accidents that occur in his department.

The Human Interest

Aside from the opportunity the foreman has for safety work by showing and convincing his men that he is interested in safety just as in any other activity in his department, there is another field by which the foreman can bring home to his men his interest in safety, and that is the interest he displays in the injured man after the accident has occurred. The foreman must see that no matter how slight the injury, the injured man must go to the doctor's office or the first aid room, as the case may be, at once. It is true, some men with trivial injuries do not see the necessity for treating them and it requires considerable tact on the part of the foreman to explain to them why it is necessary to do so. The object will be defeated and more harm than good will be done, if the foreman orders the man to go to the doctor's office gruffly, without explaining in a simple dignified way the necessity for it, because the next time the men have slight injuries they will hide them from the foreman.

After the man has been to the doctor's office and received treatment and returned to work, the foreman will make a serious mistake if by his attitude he gives the impression that the man committed a crime by receiving an injury. If the man is made to feel that by having met with an accident he has injured the safety stand-

*Read before the Tenth Annual Congress of the National Safety Council, Boston, Mass., September 27, 1921.

ing of the department, and therefore got himself in bad, he will not be a very enthusiastic booster for safety.

Those of you who have had experience in the care of accidents know we are all human and expect consideration and sympathy and recognition when we are in good health, and that we expect just a little more of these things when we are ill or when we are injured. Imagine how you would feel if, after you had worked for a company for a number of years and become injured and are sent to a hospital or home, you are dropped there and your foreman never shows any signs of trying to find out how you are getting along: you would soon lose whatever respect you had for the foreman and for the company. On the other hand, if the foreman either calls on the injured employee himself, if consistent with the injured man's length of service and other conditions, or else sends one of his fellow workmen to tell the injured that he wishes to know how he is getting along and inquires when he will be back to work, it will not only help relieve the injured's mind and make the weary days in the hospital shorter; but he will become a booster for the company and the foreman in all their undertakings including safety work.

So far we have discussed the things that a foreman can do to prevent accidents, but that is not all there is to safety work. Sometimes accidents happen to accidents which are more serious than the original injuries. Accidents may happen to accidents in two ways. Firstly, by not treating the injuries at all and secondly, by mistreating or maltreating them.

We have already seen how important it is that all injuries receive prompt treatment. When a slight injury occurs the foreman is strongly tempted to try to treat it in the department and in many cases this will meet with the favor of the employee. By doing so the foreman and the patient both assume a great responsibility because while it is true a great many slight injuries get well without any treatment whatsoever, one can never tell which one of them will cause serious trouble or even terminate fatally. There is no question that neglected slight injuries, cuts, wounds, etc., are the cause of a great share of disability, temporary and permanent. We would particularly issue a strong warning against attempts on the part of foremen or other laymen to try to remove foreign bodies from the eye. A great deal of unnecessary suffering, disability and, according to some reports, even loss of sight has been caused by infection following unsuccessful attempts to those incompetent to do so to remove foreign matter from the eyes. Another practice often followed by serious trouble is for someone in the department, the foreman or a fellow workman, to advise the injured to use his favorite remedy on his injury because it cured someone about fourteen years ago or because a friend of his once knew somebody who had a friend whose injury was healed over night by a certain preparation.

Not a Panacea

There is no cure-all for injuries any more than for sickness. Healing is delayed, serious complications brought on, and loss of limb at times caused by meddlesome treatment at the hands of the unqualified. I recall the case of a young woman who lost the index finger from gangrene caused by soaking the finger in "carbolic water" on the advice of a friend.

Of course, it is impossible to entirely eliminate this danger. People will always give advice to the sick and injured in good faith and with the best of intentions, but the foreman can do a good deal to reduce it to a minimum. He can ask the injured from time to time how he is getting along; whether he is going to the plant doctor's office for treatment or to the outside consultant, as the case may be. In that way the foreman will learn whether the injured is getting proper treatment or is using or doing something of doubtful value.

In the beginning of the paper we stated that the plant doctor is looked upon by the men as representing the company in all matters concerning accidental injuries. The importance of this cannot be too strongly emphasized and it can be seen at once that the manner and spirit with which the doctor treats the patient will not only determine to a great extent the success of the treatment but they will either make a friend or an enemy of safety out of the injured.

If the injured is treated inconsiderately, roughly and is jostled around mercilessly, he cannot be expected to entertain a great deal of enthusiasm and confidence in the plant safety work. He reasons that his company cannot be very earnest in its safety campaign if it does not care how the men are treated after they are injured. The doctor must treat the injured employees like patients and not like "cases" in whom his only interest is to make an accident report. An injured man is hypersensitive, or, as a prominent surgeon once put it, he is an insulted man, because his sensibilities have been outraged and he must be handled accordingly.

If the injured is made to feel that the doctor is doing his best to hasten his recovery and promote his comfort, he will gladly submit to the necessary treatment and will later encourage the other men to go to the doctor's office for treatment with all injuries and do so himself. The doctor must so conduct himself in the treatment of the injured that he will inspire in the men not only a confidence in the professional ability but with the conviction that he is their friend and counselor. He must make them feel that they can come to him with their accidents or with their claims for compensation and receive the best kind of advice; advice that is fair both to him and to the company. Space does not permit going into detail as to what the industrial physician should or should not do in the course of treating industrial accidents. In this I do not refer to the purely technical or professional treatment. There are a thousand and one things that go to make up the successful and valuable industrial physician besides his professional skill and learning.

The way he handles the injured parts, how he cleans them, what he does to relieve the patient's mind of worry and fear of serious complications, the air with which he notifies the injured's family of what happened to him, the frequency of his calls on the patient at home or in the hospital, his absolute adherence to all promises made to the patient and countless other things are all as important as his knowledge of medicine and surgery.

In closing it is to be emphasized that my fairly extensive experience in the practice of industrial medicine indicates safety work to be one of the basic needs of industry. The safety campaigns of the past ten or fifteen years have been a great success in that they have materially reduced the number of serious accidents with benefit to the employees and the employers, the value of which cannot be figured in money. Complete safety work is composed of two parts, one as indispensable as the other: (1) A more extended use of mechanical safety devices; and (2) a recognition of the importance of the human element before and after the accident, without which mechanical protection can only prevent a small number of accidents.

An Industrial Emergency Hospital

By BERT T. BARNES, Morse Dry Dock & Repair Company, Brooklyn, N. Y.

AN INDUSTRIAL emergency hospital equipped with facilities far superior to the ordinary organization of its kind is that at the ship repair yard of the Morse Dry Dock & Repair Company, Brooklyn, N. Y. A building of five large rooms and a sun porch is devoted exclusively to hospital purposes. Two of these are fitted up with a complete equipment, including sterilizers, dressings, surgical instruments, cots, etc., while the outside equipment consists of an ambulance, stretchers placed in the

In the special services a dental expert is retained, and an oculist, aided by the x-ray, takes immediate care of all eye injuries, major or minor.

shops and various points throughout the yard, and basket stretchers for raising injured men out of ships' holds and lowering them safely over the side.

The emergency hospital is open both day and night so that medical attention is at all times immediately available. A visiting physician is in attendance every day and treats the more serious cases, while two nurses are on duty during the day and one at night. In addition, a clerk keeps a record of every case, so that those in charge of the hospital are always in touch with injured employees and the progress of their improvement.

A very important feature of the work is the follow-up or after-care. When an employee is injured, he is kept under proper treatment until the injury is perfectly healed and he is back at work again. This is not always easy, for there are some men who get one or two treatments and then fail to show up, thus running the danger of infection or blood-poisoning. In these cases they are immediately asked to report at the hospital and, if necessary, an automobile is sent for them.

In the cases of men who when slightly injured neglect to go to the hospital for treatment, the foremen in the different departments report the injuries and these men are at once asked to present themselves for treatment. The Morse Company is intent on giving the best possible care to every employee. Not only is it solicitous for the welfare of each one, but the company believes it is financially good business to have every employee in the best possible health.

To insure the best medical and surgical attention for its employees, the company retains the services of the leading specialists in the several different branches, such as surgeon specialists, an eye specialist, a dental expert, an ear specialist and an x-ray specialist. Whenever the necessity arises, an employee is at once put under the care and treatment, according to his injury, of one of these specialists.

For most serious cases there is available the use of a semi-private ward of six beds at a nearby hospital, where patients from the yard can be given special attention. During the progress of treatment they are supplied with magazines, games, and other means of whiling away the stay at the hospital.

Established just prior to 1917, the yard emergency hospital has more than proved its worth, treating during the rush of war activity more than six thousand cases a year and at the present time averaging two thousand five hundred to three thousand cases a year.

Previous to the establishment of the present system, a truck load of ten or twenty men suffering from lacerations and minor injuries was sent to a nearby physician for treatment every day, while the more serious cases were sent immediately to the hospital. Under this plan, a speck of metal in the eye or a minor cut often did not receive immediate attention.

Now, in connection with its continuous safety campaign, the employees' magazine, the *Morse Dry Dock Dial*, constantly urges the men to get medical attention for even the slightest injuries and not take chances of infection, thus cooperating in this campaign with both the hospital staff and the management.

In addition to their work in the hospital, the nurses act also as visiting nurses to the families of the employees, when occasion arises. This activity has met with the highest appreciation from the men and their families.

This interior of the Yards Hospital shows how complete are the arrangements and equipment. The emergency hospital is open day and night, and is supplemented by out-door equipment.

Iodin as a Wound Disinfectant—Recent Research

Results of an Investigation by the Conference Board of Physicians* in Industry

By FRANK L. RECTOR, M.D., Secretary, New York City

THE use of tincture of iodin as a disinfectant for the skin, particularly for the field of operation, and for the treatment of injuries came prominently before the public about 1905. There is considerable discussion in the medical press as to who should be given credit for introducing it to the profession. Among the many claimants for the honor Cannaday,[1] Woodbury,[2] Dannreuther,[3] and Grossich,[4] should probably be considered first. Grossich of Germany is conceded by many to have been the first to write comprehensively on the subject, and later writers refer to his article in *Zentralblatt fur Chirurgie*, No. 44, p. 1289, October 31, 1908, as definitely establishing this practice.

Woodbury used iodin in 1906 in army practice in the Philippines, and wrote at some length regarding its use from 1907 to 1912. Cannaday and Dannreuther used it in this country in their general practice during the early part of the decade 1900-1910.

The tendency among those who first began the use of iodin was to use the undiluted tincture, and instances were noted where 20 per cent solutions were used. In this country Boveé[5] and Neate[6] seem to have been the first to publish results of experiments looking toward the employment of more dilute solutions. In England Turner and Catto[7] did work contemporaneously with Boveé, and they arrived at the same practical conclusion, viz.: that a 3 or 3½ per cent alcoholic solution was the best to use for general skin disinfection. The use of a solution of this strength accomplished sterilization in a few minutes.

Bovée used the plain diluted tincture while Turner and Catto used a mixture of the following:

Prepared iodin... 30 grams
Potassium iodid.. 40 grams
Aquae dest. ..... 500 cc.

Before using, this solution was diluted to 50 per cent strength with methylated spirit, making a solution of 3 per cent iodin strength.

Bovée found by his experiments that "skin may be kept sterile indefinitely, or at any rate for thirteen days, that pubic hair can be kept sterile five days with a 3.5 per cent alcoholic solution of iodin." He states further that 3 per cent strength is the weakest solution safe to use.

Neate, who carried out the experimental work for Bovée used three methods: (a) scrapings from sterilized skin surfaces were taken at definite intervals following application of different strengths of iodin and while the operation was going on, and placed in tubes of culture media; (b) small strips of skin were excised from the edges of the incision and transferred to tubes of liquid culture media under conditions similar to (a); and (c) pieces of sterile catgut sutures were passed back and forth beneath the superficial layers of the skin, the sutures not penetrating sufficiently to cause bleeding, and then removed to tubes of culture media. It was found that all tests made with a 3 per cent solution or stronger gave sterile results.

Orr[8] writing in 1913 quoted the French surgeon Walther[9] to the effect that in seven minutes the iodin (strength of solution not given) deposited on the epidermis sterilizes the deepest layers of the skin. Woodbury says that "for ordinary practice and in emergency surgery the 2 per cent tincture of iodin will be, however, the antiseptic method of choice." He says that use of 10 per cent tincture has caused edema of the glottis and post-operative pneumonia.

Kinnaman[10] found a 0.2 per cent to 1 per cent solution to be markedly antiseptic, and far superior to bichlorid. A 2 per cent solution killed streptococcus pyogenes in two minutes. He considers a 0.5 per cent solution strong enough for all antiseptic purposes. It is one quarter as toxic as bichlorid, does not coagulate albumen, is very penetrating, and is effective in a brief time.

Dannreuther said in 1908: "From my experience with iodin in hospital and clinical work, I have been convinced that it is an agency of high germicidal potency, one of the most valuable antiseptics in our armamentarium, and endowed with remarkable penetrating power." He reported at the same time that he generally used the U.S.P. tincture (7 per cent), but that in certain cases he employed Elsberg's solution, a 20 per cent solution of iodin in alcohol and ether.

Irritation Stimulates Healing

In 1908 Schantz[11] published an article in which he claimed that if a healing wound was subjected to slight irritation a much smaller scar would be left than if it was allowed to heal normally. He accordingly painted the wounds on the third and fifth days of healing with tincture of iodin, and large wounds were painted daily. By this means he stated that only threadlike scars remained even when the injury was considerable.

Those interested in the development of this subject up to the latter part of 1910 will find an excellent review by Wollheim[12] in the *American Journal of Surgery* for November, 1910.

The Present Study

Little or nothing has been written on this subject since 1912 or 1914. In order to get some expression of present uses of iodin, particularly in industrial work, inquiries were sent to about seventy-five physicians asking what preliminary cleansing was done to wounds and what strength iodin was used. Their replies are herein discussed.

Replies were received from sixty-five physicians, all of whom were doing industrial work or surgery closely allied to industry. Of this number, 2 use 10 per cent solution, 18 use U.S.P. 7 per cent tincture, 21 use 3½ per cent (or 50 per cent U.S.P. tincture), 10 use 3 per cent, 3 reported use of 2 per cent solution. The other 11 physicians reported use of solutions of 4 per cent to 5 per cent strength. It is thus seen that only 20 used U.S.P. or greater strength, while 45 used a solution of 5 per cent strength or less.

*The Conference Board of Physicians in Industry is a voluntary, informal association of medical directors in industrial plants, organized for the exchange of ideas and experiences and the formulation of suitable standards and methods in industrial medical and surgical practice. The Board acts as advisor to the National Industrial Conference Board on medical problems in industry.

A few of the men said they did not use iodin, or if used at all it was only sparingly used. One preferred camphenol, others used dichloramine-T, chlorazene, Dakin's solution, 7 per cent sodium oleate, picric acid 5 per cent, liquor cresolis compositus, hychlorite, 10 per cent calendula for large lacerated wounds, alcohol, solution of bichlorid 1:200 in 95 per cent alcohol + 2 per cent HCL.

Several of the physicians emphasized the importance of having the surface perfectly dry before iodin is applied. A damp skin surface interferes with the penetration of the antiseptic, and renders its use less efficient. Earlier writers laid stress on this same point. The most satisfactory method of preparing the wound area for iodin is to use alcohol and ether as final cleansing agents.

Objections to Iodin

Some of the physicians who explained why they did not use iodin stated that it caused burns too frequently. Austin of Remy Electric Company said he had seen fifteen weeks disability from four iodin burns in 1920. Smith of General Electric Company is opposed to the use of iodin on punctured wounds and wounds with extensive skin abrasions. In the former the iodin tends to seal the mouth of the puncture and hold infectious material, and in the latter, a hard crust is formed which delays healing. He prefers the use of a 5 per cent picric acid solution for all but large lacerated injuries. Wainwright of D. L. & W. R. R. prefers washing the wound itself and adjacent skin with 7 per cent sodium oleate. Eliott of National Lamp Works prefers alcohol to iodin while Shipley of New York Industrial Health Bureau discourages the use of iodin as a routine first aid measure substituting therefor camphenol or similar compound. He does not object to its use by physicians or nurses in the dispensary or operating room.

Owen of the Bureau of Fire and Police, Philadelphia, uses dichloramine-T with paraffin gauze mesh. Driscoll of Hendee Manufacturing Company and Noland of Tennessee Coal, Iron, and Railroad Company also use dichloramine-T and chlorazene. Hastings of the Brill Car Company uses liquor cresolis compositus more frequently than iodin. Chattaway of Remington Typewriter Company uses a wet dressing of 10 per cent calendula in place of iodin on large lacerated wounds.

Sistrunk reports that the Mayo clinic, while still using iodin, is also using a solution suggested about ten years ago by Tinker of Ithaca, N. Y., consisting of bichlorid of mercury 1:200 in 95 per cent alcohol, to which 2 per cent hydrochloric acid has been added. Wright of Harvard suggests that a dressing of bichlorid subsequent to the use of iodin is harmful. He also states that experience at the Massachusetts General Hospital shows that iodin burns can be avoided by using 95 per cent alcohol in place of water as the solvent.

Preliminary Treatment

Gasoline alone or in conjunction with benzine or ether was used by twenty-three physicians. With four men soap and water was the agent of choice with the addition of gasoline or benzine if grease was present. Six men preferred tincture of green soap, three used Abbott's neutral soap. One each preferred alcohol, lysol, 7 per cent sodium oleate, liquor cresolis compositus, creolin, cresol, and apinol. Apinol is a pine oil and by its use the physician states that in his experience grease and machine oil are removed from a wound more satisfactorily than by any other solution.

A few reported the use of two or more cleansing agents in routine work, while others listed several agents that were used, but did not indicate conditions on which their choice was based. In this last group are mentioned ether, 1:1000 bichlorid solution, peroxid of hydrogen for dried blood, synol soap, and 1:5000 cyanid of mercury, in addition to those already listed.

Conclusions

From the information summarized herein it would seem that the use of iodin as a skin and wound disinfectant still holds first place in surgical technic, particularly in the industrial medical field.

Such objections as were raised were against the danger of burns and the discomfort iodin caused rather than against its efficiency as a sterilizing agent.

As far as could be determined, for the past ten years little if any research work has been done on the use of iodin as a sterilizing agent in surgical work.

In spite of the great popularity attained by chlorin compounds in the treatment of war wounds, iodin still holds first place in the treatment of injuries in civil life.

The results of this survey indicate that the majority of physicians engaged in industrial medical work prefer the use of a solution of 5 per cent strength, or less. The Conference Board of Physicians in Industry has since its organization recommended the use of a 3-3½ per cent solution (or 50 per cent U.S.P. tincture), and in the light of present experience feels that this continued recommendation is justified.

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11. Schantz, A.: Zentralbl. f. Chir., Aug. 8, 1908, v, No. 32, p. 961.
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Government Need for Workers in Rehabilitation

The United States Civil Service Commission states that there is urgent need for reconstruction assistants and aides in physiotherapy and occupational therapy, trained nurses, and physicians, to serve in hospitals and other establishments of the United States Public Health Service and the Veterans' Bureau, in the care and rehabilitation of men injured in the World War. The Commission has announced that it will receive applications for these positions until further notice. The applicants will not be given written scholastic tests, but will be rated upon their education, training, experience, and physical ability.

The Commission points out the importance of filling these positions promptly with the best qualified workers available.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the Local Board of Civil Service Examiners at the postoffice or custom house in any city.

Publish List of Foreign Language Health Pamphlets

A list of foreign language pamphlets on health, with the addresses of the organizations publishing them, is contained in *Foreign-Born*, November, 1921. "Health Customs and Superstitions of the Immigrant Mother" appears in the same issue.

The Neuroses and the Industrial Commission*

A Clear Statement of Inducing Causes and the Remedy at Hand

By LEWIS J. POLLOCK, M.D., Consulting Neurologist, Industrial Commission of Illinois, Chicago

IT IS easy to define a square, a circle, a coin, or a box. One understands immediately what is meant by appendicitis or a fracture of the femur. It is not easy to define a neurosis, nor is it easy to understand what is meant by "traumatic-hystero-neurasthenia." In the former instances we are dealing with physical objective conditions; in the latter, with a more or less intangible, psychologic or philosophic consideration.

As an introduction let us state that for the purposes of this paper, by a neurosis we mean a condition of ill health not produced by physical change in the body or its organs, and which is not an insanity. Inasmuch as we are dealing with industrial medicine, the type of neurosis dealt with is traumatic. One speaks of such a disability as functional in contradistinction to an organic one produced by real injury

Emotional States Persist

An introduction to this mysterious condition was afforded the medical profession when it was observed that, following railway accidents, many peculiar symptoms occurred in the absence of external evidence of trauma. The condition was then termed "railway spine." Erichsen, who wrote on this subject in 1866 and 1875, later, termed it "concussion of the spine." Subsequent observation and study showed that no physical change was present, even on microscopic examination, and it was recognized, chiefly through the efforts of Charcot, that the patient presented the same symptoms as did cases of hysteria and, in short, suffered from hysteria. The terms "railway spine" and "spinal concussion" gradually disappeared, and for them was substituted "traumatic neuroses." As the hysterical nature of the disease was recognized, traumatic hysteria was commonly used, as were the terms "traumatic neurasthenia" and "traumatic hystero-neurasthenia."

One might subdivide the neuroses, artificially, into groups, as psychasthenia, neurasthenia, anxiety states, hysteria, etc., etc. The greatest number of cases are those of hysteria and in it the conditions of cause and effect are common to all the neuroses. Therefore, for the sake of simplicity through the efforts of Charcot, that this discussion will be confined to "traumatic hysteria."

It is not difficult to determine the just compensation for the loss of an eye, or the amputation of a leg. The conditions having been found, it is only a matter of arbitrary percentages. Why is it difficult to adjudicate a case of hysteria? The difficulty is due to unfamiliarity with the symptoms, the nature, the cause, and the results of this condition, and further, to obscurity of the differences between hysteria and malingering, and the ignorance of means whereby hysteria may be definitely differentiated from real injury. Let us attempt to clarify some of these difficult questions. We will not consider any of the philosophic questions as to the psychologic mechanism of hysteria, nor even offer a definition. We will attempt to make the condition understandable by some description.

In the course of association with industrial medicine one becomes familiar with many symptoms produced by injury: pain, spasms, contractures, paralyses, convulsions, etc. It may be said that in hysteria every symptom of every disease or injury may be found. We have loss of memory, delirium, confused states, and stupors. We may have paralysis of one or more of the extremities, spasms, contractures, convulsions, pain or loss of sensation, dizziness, blindness, deafness, loss of speech, vomiting, diarrhea, incontinence or retention of urine, and symptoms without end.

It is natural to ask if one is confronted with one of these symptoms how can it be shown that it is not due to real injury. Disease or injury of the body or its organs produces a disturbance of function of that particular part. This disturbance of function presents signs and symptoms peculiar to itself. The signs are constant, and are associated, one with the other, in a consistent and determined manner. For example, a paralysis of the hand due to an injury of some of its nerves shows an atrophy in certain muscles and in these only, a paralysis in only these muscles, a loss of sensation in a certain constant part of the hand and definite changes of response to stimulation with electricity. An injury to the spinal cord produces constant and definite changes of the reflexes, paralysis of a sharply defined part of the body, loss of sensation of certain characteristics, and disturbances in muscle tone and bladder and rectal changes. So with every part of the body. In hysteria there will be found absent such signs as would necessarily be present were the symptom, such as paralysis, due to an injury or we would find signs and symptoms which are adventitious and could not be associated with such a paralysis as the result of injury. In short, it may definitely be stated that a careful examination by a competent observer can serve to differentiate an organic from a functional condition, a real disease or injury from a hysteria.

Naturally, one asks how is it possible to have a symptom such as a paralysis or even a pain, and yet not have any disease of the body or its organs? If a *risqué* story be told in the presence of ladies, it is common even now-a-days to observe them blush. This blush is not imagined, we see it, it is physical; and yet it is caused by an emotion. Similarly, if one is frightened, he may be stricken speechless and motionless, his hair stand on end, his heart beat fast, he may burst out in a cold sweat, and he may even have a diarrhea. Here, too, we are dealing with physical changes not due to imagination, injury, or disease, but to emotion.

Suggestibility Heightened

Some years ago, amusement was afforded us by viewing the startling feats of hypnotists. A common enough trick was to make the cheek insensitive so that the subject felt no pain when a needle pierced it; or to produce a rigidity of the body sufficient to permit one to break, with a sledge hammer, a rock placed on the body of a man whose head and feet only were supported by chairs. In

*Read before the Eighth Annual Conference of the International Association of Accident Boards and Commissions, Chicago, September 19-23, 1921.

such a hypnotic state any disability suggested to the subject would cause him to suffer from it. Hypnosis is produced by suggestion and just as a hypnotized subject may accept a suggestion and feel and act accordingly, so does an hysteric. Some of these suggestions come from the patient himself. If one fears disability he becomes introspective and attentive to his general sensations. None of you felt the collar about your neck until I now mention it; now you all feel it. Our skin is so sensitive that we can feel the lightest wisp of cotton, yet it is seldom that we feel our clothes. We become inattentive to such feelings as experience teaches us are of no consequence. If I were to assure you that the feeling of a collar about your neck is indicative of impending insanity, and you believed me, you would feel your collar all day long.

Much of the suggestion comes from without. Consoling, anxious, and over-solicitous friends and relatives, injudicious examinations by physicians, and reexaminations without end, conversations with attorneys, repetition of symptoms in court, observation of and acquired knowledge concerning other patients, all contribute to the hypothecated picture.

What is the cause of hysteria? Is it trauma or injury? Is it shock, great emotional disturbance, overexertion, fatigue, or privation? Among the many lessons taught by the late war, many may be gleaned relative to hysteria. In this war, a new type of destructive agent was used, high explosive shells. There were observed many cases of peculiar nervous manifestations which were attributed to the concussion resulting from the explosion of shells close at hand. These cases were therefore called shell-shock.

Careful observation by trained neurologists soon showed that grouped among such cases were patients suffering from various well recognized nervous disorders not produced by the accidents of warfare; that the majority were suffering from hysteria. Here, therefore, was a huge experiment in hysteria. The first problem was to determine whether any possible physical change produced by the nearby explosion of high explosive shells was responsible for the hysteria. Evidently not, as the symptoms, tremor, paralysis, mutism, etc., etc., were found to have developed in soldiers in training camps in the United States, on transports en route to Europe, in the S.O.S., back of the lines and on the way back to base hospitals from the trenches. Such cases are even now developing among our discharged soldiers. It followed that the explosion of shells alone was not responsible nor was the privation, hunger or exhaustion.

A Disorder of Conduct

Was it emotion? Apparently not; rarely were paralysis or other major hysterical symptoms observed on the battlefield itself. Only after some time elapsed did such symptoms appear. In torpedoed vessels, when the passengers were removed to rafts amid signs of disorder and carnage, and exposed to extreme hardship and privation, hysteria did not develop. Only when rescued did the passengers develop such a condition. Some illuminating observations were made. Soldiers were more frequently affected than officers. Crack regiments showed fewer cases than others. Men with severe wounds never developed it. Prisoners of war did not experience it. Here, as in civil life, it was seen that the disease was a disorder of conduct. It occurred among those men who were dissatisfied and fearful and who could not be separated from actual warfare by legitimate causes, as capture or injury.

A state of dissatisfaction leads to the illicit motive back of hysteria in civil life; it may be due to unrequited love, marital incompatibility, inadequacy of effort to support a family, fear of discovery of crime, etc., etc. In warfare it was due to fear of death and desire to escape. Following injury it may be due to several causes: (1) fear of being severely injured, unable to resume occupation and support of family with ensuing desire for pension; (2) resentment and desire for compensation, and rarely for causes not associated with either of these two, such as would have produced hysteria had any other "accident" than injury, occurred.

Is it meant by this that these patients are faking, putting this on, that they hypothecate their illness? It is not. They suffer just as much as if they were disabled from organic causes. Is the condition imagined? It is not. No more than the hypnotized person imagines that he can feel no pain. He feels no pain. The symptoms are real enough, but they occur only because of suggestion, not because of injury or shock. Usually the patient is injured or is in an accident, he experiences some pain or slight disability, he is fearful lest it be serious, he becomes introspective, attentive to himself, sensations which formerly he would dismiss are now indicative of serious ailment. His friends ask him innumerable questions with entailing suggestions. An enforced period of idleness occurs. He is examined by physicians, who, by injudicious questions suggest new symptoms. He is fearful lest he be unable to resume his occupation and support his family. Here in short is a well prepared field for the development of severe signs of hysteria. He seeks compensation and legal advice and forthwith a hysteria develops. It does not occur immediately after accident, it occurs following a latent period during which time suggestion has had an opportunity to act.

Not Malingering

It would appear that this description would fit a malingerer. Are these conditions the same? Emphatically not. A malingerer is a willful imitator of disease for the purpose of gain. One may not be able, by means at our hands, to say that this man is a malingerer or is a sufferer from hysteria. This inability is our own fault and not the man's. It would be the grossest of injustice to many patriotic and consciously willing soldiers to compare those who developed hysteria to one of the cases I observed in France in a man nicknamed "Bosco." He imitated a case of painful bent back and exclaimed to those about him, "Follow Bosco and go to Hoboken—follow 'Black Jack' and go to Hell." Although back of both conditions is an illicit motive, the hysterical patient is not aware of it. Of course, exaggeration and prolongation of symptoms may occur along with hysteria.

Frequently a malingerer may readily be detected and the condition at times easily differentiated from hysteria.

What relation does compensation bear to hysteria? It has already been said that desire for compensation induced either by wish for pension to assist in livelihood or by vengeful spirit, may provoke, engender or prolong a hysteria. How do we know this to be true? German statistics show that in spite of medical and surgical methods progressively improving, the duration of incapacity in some ailments and in accidents is greater than it was in pre-insurance days. Before the Netherlands adopted insurance, the German working man took much longer to recover than one injured in the same way in Holland. When, however, the Netherlands adopted an accident insurance, the duration of the illness suddenly in-

creased. In Denmark it is the custom to pay insured working men, lump sum settlements at a very early stage of their incapacity and 93.6 per cent recover from what is known as traumatic neurasthenia. In Germany, however, where the injured is entitled to a pension, only 9.3 per cent recover from the same disease. The introduction of the accident law in England in 1907 saw a marked increase in the number of accident cases. In France accident cases have increased by one-fifth and the duration of temporary disability is decidedly longer than before the operation of the law.

Some illuminating observations relating to these considerations may be mentioned. Five or six months after the Messina earthquake there was not a single person suffering from a neurosis caused by the earthquake. No source of compensation was available. When, some years ago, railroad employees were not compensated for injury, they were eager to return to work following an accident and it was the passenger who was afflicted with a traumatic neurosis. The availability of compensation, however, has caused the employee to develop such states as well. It is a common observation among social workers dealing with the poor, that if following illness, prolonged pension is carried out and return to work not encouraged or enforced, the individual becomes a chronic invalid and a ward of the charities. It has been found that in a certain group of people investigated, some 75 per cent of pauperism resulted from illness and this state was fostered by constant assistance without intelligent direction of rehabilitation by labor. At first assistance is abhorred, avoided, reluctantly received, then the morale weakens and assistance is sought, next it is expected and finally demanded.

It is the opinion of contemporary neurologists that were it not for possibility of compensation the traumatic neuroses would practically not exist.

Litigation holds out promise of reward and fosters the neuroses. Prolonged litigation prolongs the duration of a neurosis and prolonged forms of compensation work to the same end. Litigation is productive of ill effects through other causes. The presence of a patient before a board or court while his case is being discussed awakens a sense of resentment or distrust. A feeling that the corporation through its expert is trying "to do him." He develops the conviction that he is very seriously and permanently injured through the histrionic efforts of his counsel and statements of ignorant witnesses. He has suggested to him new symptoms and promptly develops them. Some responsibility therefore rests upon our legal system for the production of these neuroses. It was held by the Fourth Chamber of the Tribunal in France in a certain case, that the incapacity with which the workman seemed to be affected resulted not from the accident, but from the erroneous opinion which the man formed of the rights to which he was entitled by persuading himself that an income was necessarily due him. For this reason compensation was refused. What is the result following a settlement of the case? Although it is claimed by some that settlement always cures a traumatic hysteria, I believe that there are occasionally exceptions to this rule. At times a traumatic hysteria may persist many months or years following such a settlement. This is rare and is always due to such difficulties as would have produced the hysteria had the accident not occurred. Such difficulties may be social maladaptations or deep rooted fears. If judiciously treated these cases may be relatively rapidly cured.

If a case of traumatic hysteria is to receive compensation, some idea of actual disability is necessary. A traumatic hysteria is curable. It does not produce any permanent disability. The severity of the injury has no relation to the type of severity of the hysteria. Severe symptoms have no relation to the duration of the disease nor are they any indication of a lasting disability. A paralysis of all four extremities may be cured in ten minutes, a slight spasm of the eyelids may last a long time. Harrowing experiences and extremes of horror or fright bear no relation to the severity of the illness. A complete paralysis may follow a slight sprain from stumbling and a Messina earthquake produce merely the winking of an eyelid. Whatever the symptoms, a neurosis is a neurosis and one case can be cured as rapidly as the other. However differing in detail, all accidents produce the same type of disability if it produces a hysteria.

Now to the milk in the cocoanut. Obviously, if compensation is one of the causes, it must either be dispensed with or it must be given in an innocuous form. As an indication of this mention may be made of the conclusion reached at a joint meeting of the Neurological Society of Paris and the Chiefs of Military Neurological and Psychiatric Centers. It was voted that for hysteria neither dismissal from service nor gratuities were to be given. It has already been shown that early lump sum settlement tends practically to eliminate the long duration of these conditions. If existing laws are such as prevent such a settlement, refuge may be taken in arrangements between counsels for apparently such a settlement in the ignorance of the patient. Unfortunately, owing to the frailties of human nature, this is frequently unsuccessful. Prolonged litigation must be discouraged. After all the important thing is to get the patient well. A corporation lawyer remarked to me relative to this statement, "Perhaps from the medical standpoint, but not from mine." He was decidedly wrong. As soon as it is recognized that immediate final settlement cures a hysteria, it will be found that the amount of expense, otherwise prolonged, will be reduced. The quicker the patient recovers, whatever the initial cost, the less, in my opinion, will be the expense. Certainly an early and final settlement is the only just procedure for such a case. In addition to this several essential features in the handling of such a case stand out; an early and correct diagnosis by competent observers, avoidance of careless examinations and ignorant diagnoses, a quick return to some form of work, and avoidance of prolonged litigation and its ensuing chances for suggestions and fixation, particularly when the patient is an observer of the trial of his case.

Perils of Daily Life Increasing

Recent figures sent out broadcast by the Census Department serve to indicate that 9,000 persons were killed last year by motor vehicles in the death registration area. The death rate last year from motor vehicle accidents was highest in California, Connecticut, New York and Washington. The highest death rate from this cause among cities was in Youngstown, Ohio, with Memphis a close second. Other reports indicate that more people are killed in the United States by accidental falls than are killed by automobiles. The staircase, though not as deadly as the motor, nevertheless numbers its victims by the thousands. Treacherous scaffoldings and defective sidewalks accounts for 10,323 deaths during the past year. Attention should be fixed upon these remediable causes in the effort to lessen accidents.

Safety Congress Officials

THE Executive Committee of the National Safety Council at its first meeting following the Tenth Annual Congress, elected W. H. Cameron, formerly secretary-treasurer of the Workmen's Compensation Bureau, New York City, as executive secretary. Mr. Cameron, who on November 1 assumed charge of the headquarters of the National Safety Council at Chicago returned to a position which he held from the creation of the Council in 1912 to 1919. The following vice-presidents were elected:

David S. Beyer, Liberty Mutual Insurance Company, Boston, Vice-President for service to members.

B. F. Tillson, New Jersey Zinc Company, Franklin, N. J., Vice-President for industrial safety.

F. A. Davidson, Dwight P. Robinson Company, New York City, Vice-President for sectional activities.

C. B. Scott, Bureau of Safety, Chicago, Vice-President for local council.

David Van Schaack, Aetna Life Insurance Company, Hartford, Conn.; Vice-President for public safety.

W. E. Worth, Chicago Safety Council, Secretary and Treasurer.

W. H. Cameron, the newly elected executive secretary of the National Safety Council.

General Labor Congress

BY OUR LONDON CORRESPONDENT

TWO very important public health problems cropped up at the General Labor Congress held recently in Geneva—the use of white lead in paint and the question of anthrax. With regard to anthrax, Professor Armstrong, Australian employer's delegate, moved the following resolution: That the Committee consider that the question of the universal and compulsory disinfection of wool and hair infected with anthrax in its economic and humanitarian aspects to justify the establishment of an inhas not yet been sufficiently studied to justify the establishment of an international convention.

That the Committee should request the governing body of the Internation Labor office to appoint an advisory committee to which the governments of France, Great Britain, and Germany, as representing the users of the material, and Australia, India and South Africa representing the producers, should be invited to nominate representatives, and that this committee should be instructed to examine the question in all its bearings and present its report to the governing body in time for consideration for the conference of 1923.

That, in the meantime, the proposal of an international convention be postponed, that the Committee consider that the chairman of the proposed advisory committee should be nominated by the British government and that the inquiry should be at first mainly by correspondence but that when meetings of the committee become necessary they may be summoned by the chairman in London; and, further, that the cooperation of a representative from the United States should be invited.

The resolution finally states, that, while accepting disinfection as the only effective means at present available for protecting the workers against infection from certain classes of material, the committee regards the eradication of the disease among animals as the ultimate solution of the problem, and is accordingly of the opinion that the advisory committee referred to in the foregoing resolution should be further instructed to make full and careful inquiries respecting the most practical and effective methods for preventing infection.

Mr. R. Whitworth of the British Employers' delegation supported the resolution. He expressed regret at the absence of the United States from the conference, and hoped that America as one of the greatest consumers of East Indian wool, would participate in the proposed investigation. The voting on the resolution was deferred.

The Committee on white lead unanimously adopted the following resolution referring to lead poisoning, passed by the medical sub-committee: That medical science has been able for a long time to diagnose satisfactorily typical and severe cases of saturnism, acute or chronic lead poisoning. Modern methods of diagnosis in the hands of specially trained men enable them: (1) to recognize saturnism in the majority of doubtful cases; (2) to exclude cases of wrongly alleged saturnism; and (3) to recognize lead absorption and lead poisoning at an earlier stage than heretofore.

Tuberculosis Among Grinders

The occupational hazards as related to the trade of grinders constitutes the subject of a study reported by W. Herbert Drury, M.D., in *Public Health Reports* of February 4, 1921. Intensive study was made dealing with the mortality from tuberculosis in a large factory in the state of Connecticut devoted to the manufacture of axes and other edged tools. The study developed the fact that these workers are subject to a very high death rate from pulmonary tuberculosis. The excess death rate among this group of "polishers and grinders" indicates that seventy-eight men have died during the past two decades as a result of industrial tuberculosis in these particular grinding shops. The maximum number of deaths from tuberculosis occurred at the age of forty-five years instead of twenty-five years as among the other operatives in the mill. This particular age incidence and the enormous excess death rate for the "polishers and grinders" being closely associated with the environmental condition of the industry. Although the problem is complicated by the fact that the grinders also represent a foreign group of low social status and intemperate habits, it is held by the Report that the dust produced in wet grinding is largely responsible for the enormous incidence of tuberculosis found in this industrial establishment.

Bibliography on Stammering

The September, 1921, issue of the *Laryngoscope*, XXXI, No. 9, contains a bibliography on stammering from 1911 to 1920, inclusive.

Output and Hours of Labor

THE question of hourly, daily, and monthly output has been the subject of conjecture but of comparatively little objective analysis. Dr. H. M. Vernon in his recent book on "Industrial Fatigue and Efficiency" devotes a large part of his attention to the problems therein involved, bringing together and correlating statistical data and experience heretofore scattered and unavailable to many. He is primarily concerned with the relation of output to fatigue and efficiency.

It is found almost invariably that when some industrial process involving a muscular act is performed by a fresh and healthy individual that the efficiency of the performance gradually increases. In other words, it takes time to tone up the human mechanism to a satisfactory standard. Efficiency in these situations is attainable only with practice. This Vernon calls "practice efficiency." Simple muscular acts frequently repeated may reach a maximum in minutes or seconds, while with complex and coordinated muscular movements it may take hours or weeks to attain the result desired. On the other hand, fatigue tends to intervene and counteract the improvement of efficiency from practice. In some instances, the fatigue processes may never be sufficient to overpower practice efficiency and the output may rise steadily throughout each spell of work. Mental processes may influence the work in opposite directions, a feeling of monotony tending to depress the output, while the feeling that the work spell is nearing its end may tend to stimulate output temporarily. This is particularly evident in the end spurts which take place just before a holiday (Table I).

From this data, Vernon deduces a law that "experienced industrial workers unconsciously adopt habits of work which tend to the production of a maximum of output with the minimum of effort." In other words, as a matter of self-protection this conscious or unconscious slowing up process is inevitable. In the United States we have not so far met with the conscious limitation of output found in some countries. The above figures show the average value of goods produced by each worker per year. The variation may in part be due to depressions of trade, strikes, and other industrial or economic factors, but it seems very improbable that these reasons alone explain the situation, because of the steady increase of productivity in the United States, Australia, New Zealand, and Canada as opposed to the steady decrease in England (Table II).

TABLE II.—VALUE OF GOODS PRODUCED BY EACH WORKER PER YEAR

	In 1886	In 1906	In 1912	Per cent change between 1886 and 1912
United Kingdom	£312	£275	£244	- 22
United States	100	596	600	+ 50
Australia	333	162	542	+ 63
New Zealand	359	470	603	+40
Canada	341	..	472	+ 38

The question of output in relation to weekly hours, the reduction of the twelve hour day to ten hours, then to eight, and of 60, 55, 48, and 44 hours of work per week is of the greatest importance to both employers and employees. How can the total output be increased by shortening the hours of work. The successful maintenance of an industry depends on the workers achieving a good output, not for a few hours or days, but for periods of weeks, months, and years. The conditions of production should not lead to a cumulative fatigue from which the worker does not recover with his week end of rest. If he does not so recover, his output will fall from the effects of fatigue until his experience shows him how far he may work within his physical power. When hours were reduced at the Zeiss Optical Works at Jena from nine to eight, the workers made a vigorous effort to increase their output, but the men overshot the mark and became fatigued, their output dropping from 19.5 per cent to 5.5 per cent. However, the output rose to 10.2 and 12.9 per cent, where it remained. The output of a large number of women (100) was studied for ninety-three weeks (Table III).

TABLE III

In the 74.5 hour week total output was.....66.0×108=7128 (=100)
In the 63.5 hour week total output was.....54.4×131=7126 (=100)
In the 55.3 hour week total output was.....47.5×169=8028 (=113)

Among the men sizing fuse bodies the total output was:

In the 66.7 hour week total output was.....58.2×100=5820 (=100)
In the 60.2 hour week total output was.....51.0×120=6120 (=105)
In the 55.5 hour week total output was.....50.4×137=6905 (=119)

TABLE IV.—OUTPUT OF BITUMINOUS COAL, ILLINOIS

		Average days worked per year	Average output in short tons	Percentage of coal cut by machine
1894		183	2.5	?
1895	10-hour day	182	2.6	?
1896		186	3.0	19.6
1897		186	3.4	19.7
1898		175	3.2	18.4
1899	8-hour day	206	3.2	24.9
1900		211	2.1	19.7

In many industries in the United States the hours of work are entirely too long. Reductions in hours of work vary in their effects in the different industries according as that industry is dependent chiefly upon human labor or upon machinery. Vernon quotes a table concerning the output of bituminous coal miners in Illinois (Table IV).

The diminution of absenteeism and the increased output is too evident for argument, but 184 or 198 days' work out of 365 per year is well worthy of comment.

TABLE I.—INFLUENCE OF A HOLIDAY ON SPEED OF PRODUCTION

Operation	Clear weeks before holiday	Broken week before holiday	Broken week after holiday	Clear weeks after holiday
Women turning fuse bodies	123 120 126 123 131 137 123 134	126	118	141 135 134 138 135 139 137 137
Men sizing fuse bodies	116 114 121 125 122 126 115 123	111	109	125 121 123 119 120 124 126 123

E. P. Dutton & Co., New York, 1920.

Recent Compensation Decisions

THE Supreme Court of Illinois, June 22, 1921, in a proceeding under the Workmen's Compensation Act, held the evidence insufficient to show that an employee's condition was caused by lead poisoning rather than by infection from conditions having no connection with the employment.

The St. Louis Smelting & Refining Company operated a lead smelting furnace at which Joe Benno began work February 22, 1919, as a feeder, helper, and charge wheeler. "On April 19, 1919, while tending a furnace, he was affected by the smoke and gas of the furnace, and became dizzy and vomited. He lay down for a time and then walked home with some assistance from a fellow workman. He had pain in his stomach and in the calf of his right leg, and made application to the Industrial Commission for compensation, alleging that his physical condition resulted from an accident arising out of and in the course of his employment and that the injury to his leg was permanent."

The medical testimony will not be given in full. Dr. Harrison, the company doctor, was not at home. Dr. Armbruster was called and treated him until he went to the Barnes Hospital in St. Louis, October 2, 1919. Dr. Harrison saw him seven or eight days after he became sick. Dr. Eyerman of the Barnes Hospital examined Benno June 9, 1919, saying he had a bluish black line on the gum margin, and he gave him the usual treatment for the elimination of lead; that he had sciatic neuritis which could come from any local infection and could also come from lead; that he also had carious teeth, "and the witness then rendered an opinion that he was suffering from lead poisoning."

On cross-examination Dr. Eyerman said "that the improvement of Benno was not as rapid as it should have been, and that he might have been suffering from a focal infection, which is pus infection anywhere; that he was suffering from pyorrhea which was sufficient to cause the condition of the sciatic nerve; that sciatica might be caused by pyorrhea or lead poisoning; that he did not think that he had made the statement in direct examination that the sciatica was caused by plumbism; that in his opinion the plumbism had a very minor rôle in the causation of Benno's disability; that lead poisoning might produce the symptoms described by Benno or might not, and the fact that the sciatica did not respond to the treatment for plumbism impelled him to doubt that plumbism might be a contributing cause of the sciatica."

Dr. Armbruster testified that he treated Benno for erysipelas, "and that this condition could not have been caused either in whole or in part by any lead poisoning or the breathing of gas nor be attributed to lead."

Dr. Harrison, the company doctor, testified that he had made a special study of lead poisoning, that he last examined Benno two days before he quit work, that he was then suffering from pyorrhea, that he had no blue line on the gum, and was not suffering from plumbism.

In the opinion of the court, "Considering the other testimony of Dr. Eyerman, there was nothing more than speculation or conjecture that the condition of Benno might have arisen from lead poisoning or from infection from conditions proved and not disputed.

"There was no evidence sufficient to sustain the award, and therefore the judgment of the circuit court is reversed, and the cause remanded."—*St. Louis Smelting & Refining Company v. Industrial Commission, 131 N. E. 617.*

IN A proceeding under the Workmen's Compensation Act to recover for the death of a servant, where injury received in the accident in question was an epigastric hernia, and when the physician operated the deceased servant employed him independently to operate for an inguinal hernia of long standing under the same anesthetic, and death resulted from the post-operative surgical shock, the Supreme Judicial Court of Maine, July 8, 1921, held that it was left to uncertainty and conjecture whether the servant would have died from the shock of the epigastric hernia. The court held that compensation could not be recovered.

"The inguinal hernia clearly was not affected by the accident. The operation on it was entirely independent of the ventral operation and done at the express request of the deceased, and was not necessary at that time. The accident only required the ventral operation, and even if the post-surgical shock of the ventral operation, together with the post-surgical shock of the inguinal operation, did not contribute to his death, still the accident cannot be said to have contributed to his death, because the inguinal operation was not required by reason of the injury received by the accident, but was the independent act of the deceased, and without which it is not certain his death would have occurred.

"But if it was certain that he would have survived the ventral operation, then certainly death was not the result of the accident, because he voluntarily ordered an independent operation without which he would have lived; and, if the post-surgical shock of both operations did contribute to the death, it was not due to the accident, but entirely to his own voluntary act."—*Dulac v. Proctor & Bowie Co., 117 A. 293.*

THE Supreme Court of Michigan, July 19, 1921, has stated that where the testimony is susceptible of the inferences drawn therefrom by the Industrial Accident Board, its conclusion is final, and the Supreme Court has no right to interfere.

The evidence showed that an employee was directed to go on a gondola car and was seen on it. A few minutes later he was found in a half-reclining position at the foot of the ladder leading to the top of the car. He complained of being hurt, and soon after died from acute dilatation of the heart, which, in the opinion of physicians, could be and usually was produced by a fall, over-exertion, or jumping. In the opinion of the court, the conclusion of the Industrial Board that he either jumped or fell from the car and that the shock caused acute dilatation of the heart was warranted. *Shaw v. Packard Motor Car Company, 183 N. W. 767.*

THE Supreme Court of New Jersey, July 7, 1921, states that where a workman receives a personal injury from an accident arising out of and in the course of his employment, and a disease ensues, which, but for the accident, would not have ensued, and which disease causes his death, a finding that death was in fact the result of the injury and was within the meaning of the Workmen's Compensation Act is justified even though it is not the natural result of the injury.

The deceased was 72 years old, employed as a porter by the Regina Company. He was injured at his work February 6, 1921. "He was

caught between the door and the casing of the elevator and pinned there, with one leg within the elevator and the other on the outside, and remained in that position from five to eight minutes. It was necessary to pry the door away to release him. It was impossible to get an ambulance because of heavy snowfall. He was taken home within an hour in a sleigh. . . . The medical testimony as to the cause of the death was in conflict. The company insists that the cause of death was diabetes, or influenza, or both. But the physician called by the petitioner testified in effect that the accident was a factor in producing death."—*Geizel v. Regina Company, 116 A. [illegible].*

A DEPARTMENT store employee, while pulling out a large drawer, felt a snap in her chest and fell fainting, the drawer falling on her chest. After working for seven months thereafter she was operated on for cancer of the breast and her physician testified that neither he nor anyone knew whether a direct trauma would be necessary to produce such condition, but that "cancer may follow an injury." The Supreme Court of New York, Appellate Division, July 7, 1921, held that the evidence was insufficient to show that the cancer was a result "naturally and unavoidably" from an accidental injury within the meaning of the Workmen's Compensation law.—*Schapiro v. Wanamaker, 189 N. Y. S. [illegible].*

THE Appellate Court of Indiana, June 30, 1921, held that the injury to a workman need not be the sole cause of his death, in order to entitle his dependents to compensation. It is sufficient if it is a concurring cause. The court sustained a finding by the Industrial Board that the cause of the death was the injuries sustained in an explosion in a local mine while the deceased was engaged in firing shots therein, and not to a mechanical obstruction of the bowels, as claimed by the employer. —*[illegible] Coal Company v. [illegible], 131 N. E. [illegible].*

THE Supreme Court of Illinois, June 22, 1921, in proceedings under the Workmen's Compensation Act, held that the evidence that an employee who had a cerebral hemorrhage a few minutes after a fellow employee had threatened to strike him with a stick, with expert testimony that the hemorrhage might have been caused by the excitement produced by the altercation or by another cause, or might even have occurred while the employee was in bed, does not show that the employee received an accidental injury arising out of his employment.

It was further stated that an employer cannot be liable under the Workmen's Compensation Act on a choice between two views equally compatible with the evidence, but such liability must be based on facts established by evidence fairly tending to prove them.

The facts in the case are stated: Fox was a yard foreman, Scanlan a teamster who went to the yard of the Ideal Fuel Company for a load of coal. "When he had his wagon partly loaded, Fox went to him and told him that he was loading the wrong coal and would have to unload it. Fox testified that Scanlan became angry, abused him, and threatened to strike him with a 'thick, strong board.' No blow was struck and no attempt made by either of the men to strike the other. A few minutes after the quarrel Fox started to fall, and a teamster who was standing near caught him and laid him down. The doctor testified that Fox had hemorrhage of the brain and a paralytic stroke. Fox was at the hospital eleven weeks and then returned home. He has never been able to work since February 4." The arbitrator made an award which, on review, was affirmed by the Industrial Commission.

In the testimony before the court the attending physician showed that the paralysis "was due to blood clot in the brain; that that condition could be produced by a 'fright or fracas,' but the doctor was unable to determine whether it was caused by the difficulty between the men. He testified a clot in the brain may come from a variety of causes. It may come while a man is asleep or after eating heartily. The doctor testified that where a man falls following a threat to strike him, the blood clot might be due to the excitement or the fall or many different causes; that it would be impossible to determine the cause of the hemorrhage, but from what he had heard of the quarrel he would judge that was the exciting cause. It is a matter of conjecture from the evidence, but he would not attempt to be positive."

In the opinion of the Court, proof that fear or excitement might have caused the blood clot is not sufficient, and because the proof also showed that it might result from other causes or occur at any time, it is not a reasonable basis for liability. The judgment of the circuit court was reversed and the award set aside. —*Ideal Fuel Company v. Industrial Commission, 131 N. E. 649.*

Occupation is Reported as Furthering Treatment

Physicians in charge of tuberculosis sanatoriums are often discouraged by the failure of a large portion of their patients to remain under treatment a sufficiently long period. Many such patients, disregarding the advice of their physicians, leave within a month of their admission. A recent report issued by the United States Public Health Service demonstrates conclusively the value in this connection of occupational therapy as an adjunct of treatment. As carried out by the experienced reconstruction aides of the United States Public Health Service, occupational therapy, consisting of mental work and manual handicraft for curative and diversional purposes, promises much in the medical care and treatment of discharged and disabled soldiers cared for in Government tuberculosis sanatoriums.

"Occupational therapy," said Doctor Lavinder, who is in charge of the United States Hospital for the care of disabled soldiers, "is one of the latest developments in the modern care of patients. It is applicable to all kinds of conditions and is given both for direct, curative action, for the improvement of function of muscles and joints, as well as for the marked effect of stabilizing the patient by increasing the morale. Our results with it have been excellent. Occupational therapy is not vocational training. In the hospitals of the United States Public Health Service occupational therapy is given to bed patients and those who are convalescent. When the patients have completely convalesced this form of therapy is succeeded by vocational training."

According to this report, out of 392 patients admitted to one sanitorium, 263 took occupational therapy and 129 did not. Of the former, only two patients left the hospital against the advice of physicians in charge. On the other hand, of the 129 who did not take occupational therapy, 85 either deserted or left the hospital against the advice of the physicians in charge. This is less than 1 per cent among the former, as against 65 per cent among the latter class of patients

The Public Health Service operates the largest unit now engaged in occupational therapy and physiotherapy.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

The James Whitcomb Riley Memorial Hospital

By JANE M. KETCHAM, M.D., Indianapolis, Ind.

THERE is nothing dramatic or startling in the statement that children's diseases are of inestimably greater concern than are those of adult life. It is not that the usually considered simple illness of whooping-cough can kill ten thousand children in the year 1916 in a civilized portion of the United States. It is not that measles can put whole communities out of business, but rather it is the fact that measles is the precursor of tuberculosis which makes it an exceedingly important factor in our economic life.

Children's diseases are always acute in their onset and their after effects are the deciding factor which makes that individual child an asset to his community or a care to the state. This is not the slightest exaggeration. The other day a woman came into my office. She was expecting to be taken care of during the most major situation which ever faces any woman and she had been cruelly prepared for it. As a baby she was as healthy as any fond parent could wish. When she was seven years old she went through a prolonged attack of typhoid fever. In those days sufficient care was not given to the convalescence from disease; this little girl was allowed to get up too early and her poor little back just crumpled up under the strain. Her crippled spine was the result of the sheerest neglect, mostly the result of ignorance. But that woman, with all a woman's natural warm desire for children of her own, was facing what was for her an almost impossible condition.

Fig. 2. The piteous plea of helplessness in children awakens universal sympathy, but not always a wise response.

Fig. 1. What kind of a future could be predicted for this child if Science and Humanitarianism did not come to his aid?

Time the Essence of the Matter

Every year in every state in the Union, millions of dollars are spent on the care of the insane and the criminal, almost two-thirds of which would have been rendered unnecessary by a much slighter expenditure on the conditions of infancy. Take club feet, for instance. Any woman who looks at her new baby's feet must know if they are not properly formed. She may not know, however, that the time of election to straighten those feet and make it possible for her child to run and play as others do is when that baby is very small. Or another mother may not know that the time to begin treatment for glandular deficiencies is as soon as the baby is born and not after the child has grown to man's estate and is a hopeless idiot.

The State of Indiana, aided by a number of representative citizens, is planning to erect a hospital which will take care of children's troubles exclusively and will undoubtedly be a great factor in the state for the

Fig. 4. The proof of what adequate care will do for the child, even against the greatest odds, is shown in this result, accomplished for the child shown in Figure 3.

early prevention of those distressing conditions which make man's estate so intolerable. The hospital is to be in memory of Indiana's favorite son and will be named the James Whitcomb Riley Memorial Hospital. An executive committee of ten members, five from the Board of Trustees of Indiana University and five from the James Whitcomb Riley Memorial Association, will be in charge of the undertaking, but the hospital will be directly under the control of Indiana University, which will insure its perpetuity. The hospital will be a gift in fee simple to the state. Friends of the hospital who will give towards its establishment and maintenance will be assured that what they give will be well taken care of and prudently administered. The new building will face the Robert W. Long Hospital, which is the teaching hospital of the Indiana University School of Medicine, and there will be a parkway on the other side across which the Indianapolis City Hospital and the Burdsall unit may be seen. The grounds will be extensive and will insure plenty of fresh air and play space for little convalescents.

The law under which the hospital will be administered, provides that all of the children of the state of Indiana who need medical or surgical attention, may be admitted without cost to themselves, as rapidly as facilities will permit. Parents, guardians or anyone interested in a child needing such attention may present his case before the circuit judge of his county, who has the power to place the child, and the hospital must admit the child as soon as it is possible to give it proper attention. If the parents are able to pay, they will probably wish to do so, but this is not compulsory. The state will provide funds for equipment and for operation of the institution, and it is planned to have 200 beds.

The plan of the Riley Hospital has been modeled after the State University of Iowa Hospital for children. The architect's plans provide for a group of two-story buildings around a central administration building. There will be wide and open porches where little wheel chairs and cots may be pushed and there will be gymnasiums for all the children who may use them, but especially for the orthopedic cases. It is the plan to be able to treat hundreds of children, whereas now the Robert W. Long Hospital possesses absolutely the only facilities at the present time to care for all of the needy children of the state. There is room for 24 children in the Long Hospital, and there is a daily waiting list of at least 50 who are really in need of immediate attention. There is no question of the need for such an institution. Civilization marches forward on the feet of little children. The question is: Who is going to see that those little feet become straight and strong?

A campaign has been started in all the schools of the state so that the children may help on this memorial

Fig. 6. If irreparable damage is to be avoided, these little crooked bodies must have applied early the most skilled orthopedic service. Society owes to every one of its children a place in the sun.

Fig. 5. Treatment delayed in such a case as this condemns the child to permanent deformity. If we care for the future, we must save the children.

to the children's poet. Groups of children all over the state are doing their bit toward this end. One of the directors for the new hospital is the professor of oto-laryngology in the Long Hospital. Last year a teacher wrote to him that she had two boys in her school who were in imminent danger of permanently losing their hearing. Their names had been put on the waiting list and had been accepted at the Robert Long Hospital, but there was a long waiting list. This teacher appealed to have the children attended to immediately, as their need was very great. To make a long story short, the teacher paid the expenses of the children to Indianapolis from her private funds, the doctor took care of the children and they were returned to their school in good condition. When the word went out about the possibility of a new hospital, children of the school from which these two had come, delighted at the care their playmates had received, banded themselves together and gave a play for benefit of the James Whitcomb Riley Hospital.

At the present time there is a drive on among the school children to raise funds for the Riley Memorial. It is hoped not only to raise funds for the hospital but to instill a vein of civic pride in the children, so that each child in the state may say: "This is my hospital; I helped to build it."

The Riley Memorial will be a lasting tribute to the poet whose name is known all over the world as the children's poet.

Open Air Dormitories at University of Arizona

Arizona is Unique in Providing Outdoor Sleeping Quarters for all University Students

By A. O. NEAL, Registrar, The University of Arizona, Tucson, Arizona

THE University of Arizona is unique in many ways. It is the university of the youngest state. In percentage of growth in the past six years it has exceeded all the institutions of higher education except four.

With the increased registration it is presenting administrative problems which challenge the best thought of its executives.

Necessarily the housing of the increasing number of students is a vital problem, and in the dormitory arrangements a plan has been evolved which is unusual in that all students sleep on open air porches. The dormitories have all the usual provisions of the college halls. There are reading rooms, social rooms, and congenial quarters for guests. All dormitories have showers and toilets on each floor, and all rooms are heated by steam from a central heating plant.

Administrative Problems

Each women's hall is in charge of a competent head who has supervision of the work, health, and social proprieties of the members of the group.

In each men's dormitory there is a suite for the head resident, who is a member of the faculty. The plan followed is to have a man and wife, and in this way a home atmosphere is maintained.

While these provisions are usual in many institutions, accommodations for sleeping are unusual if not unique—all students sleep on open porches. This applies to women students as well as to men students. Students are *required* to sleep outside their study rooms and, if unable to adjust themselves to the condition, must secure living quarters off the campus or in the infirmary.

In addition to these dormitories operated by the University, there are six fraternity houses and six sorority houses with similar outdoor sleeping arrangements.

How It Came About

The climatic conditions at Tucson during the school term made it very easy to follow the advice of those who recommended outdoor sleeping quarters. The climate is mild, dry, and equable. The rainfall during the winter is very light, fogs are unknown, and cloudy days rare. The percentage of sunshine throughout the winter months is greater than that recorded at any other place in the United States. The total amount of rainfall for the year averages less than twelve inches, the greater part of which comes in July, August, and September. These advantages insure a wide range of outdoor recreation throughout the college year. The nights are clear and the night temperature will average thirty degrees less than the maximum daily temperature.

The first dormitory—North Hall, built in 1898—was provided with sleeping porches upstairs and down. Each of these porches was fitted with

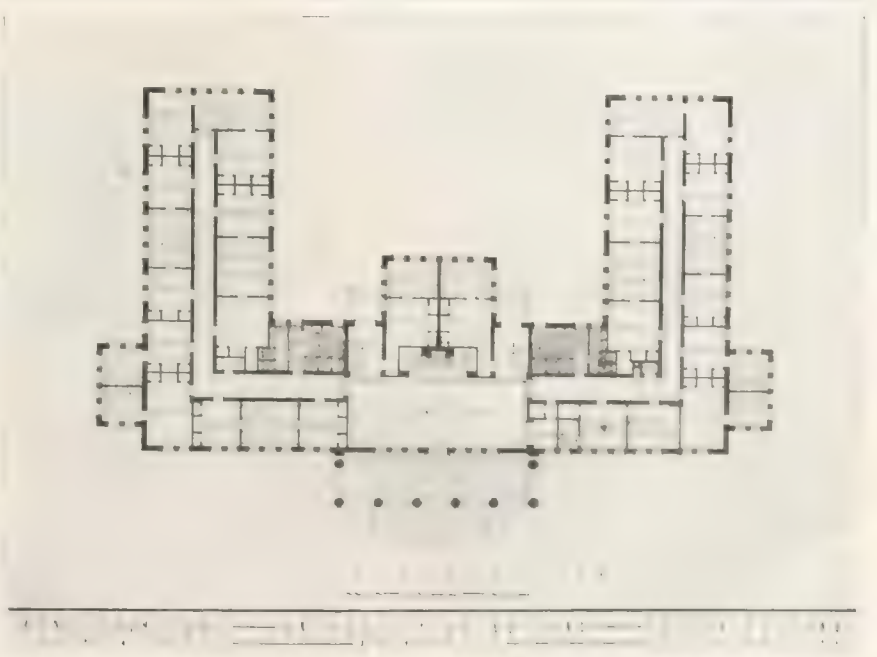
The way to resume is to resume. If open air living lifts men to higher levels of energy, then why forge shackles for ourselves by habits of indoor living once sadly conceded to be a gratuitous handicap?

In most schools instruction in the laws of bodily and mental health are far from adequate. Health practices are too often conspicuous by their absence or by their remoteness from present application.

But here we have the scientific mood as the basis for action. Sound bodies and wholesome outlook are fostered and make for that stability of persistence of effort which registers itself in progressive achievement.

Dormitories at University of Arizona

Name	Built	Occupants	Capacity	Floors	Sleeping Porches	Fireproof	Cost
East College ...	1906	Women	16	2	Yes	No	$ 5,000
North Hall ...	1908	Women	40	2	Yes	No	[illegible]
South Hall	1909	Men	70	2	Yes	No	20,000
Arizona Hall	1912	Men	60	2	Yes	Yes	[illegible]
Maricopa Hall .	1920	Women	113	3	Yes	Yes	180,000
Cochise Hall ...	1920	Men	142	3	Yes	Yes	[illegible]



The first floor plan of Cochise Hall, men's dormitory. The sleeping porches accommodate four single beds each, connected with two study rooms

North Hall, women's dormitory. The exterior view of this building shows the provision of sleeping porches, upstairs and down

fifteen single beds. The porches are reached by passing through long corridors from the rooms to the porch. The exposure of these porches is to the north and east. Rolling canvas curtains were provided for protection in case of driving rains. For twenty-three years the plan has proved satisfactory.

East College, built in 1896, provided sleeping quarters for sixteen girls. Here the sleeping porches were at the rear of the house and provided with double decked beds. This arrangement was unsatisfactory and has been discontinued.

Maricopa Hall, women's dormitory, showing arrangement of beds on sleeping porches, interior of central wing

When South Hall was built in 1900 it provided no open air sleeping quarters. The rooms were small, twelve feet square, and were suitable for one person to use for both study and sleeping. As the number of students increased, it became necessary to provide additional sleeping quarters, and beds were placed entirely outside the building. This practice led to the provision of two large wings on the second floor. These were open on three sides and provided space for thirty-five single beds on each of the two screened porches. This plan has the disadvantage of having a large number of persons occupying the same porch. This lends itself to confusion or disturbance through the movements of so many occupants.

In Arizona Hall, built in 1912, a different plan is provided. Here the building is built on the "U" plan with all rooms outside rooms with a screened porch around the central court. Each room opens upon this porch, which serves as corridor and sleeping porch. Single beds just outside the door of each room provide sleeping quarters for the occupants of the room and make is unnecessary for them to pass through long corridors or stairways going from room to bed, or *vice versa*. This plan is satisfactory and has many desirable features.

Maricopa Hall, a dormitory for women, was completed in 1920. It has three floors accommodating thirty-five girls each. The rooms accommodate two girls each and are all outside rooms. On each floor there are three sleeping porches, so that the number of beds on each porch is limited. The passageways from rooms to sleeping porches are heated so that in extreme weather there is no exposure. The porches are screened and curtains provided, which are used only in case of driving rain or windstorm. The architects for Maricopa Hall were Messrs. Lescher and Kibby of Phoenix, Ariz.

Cochise Hall, just completed, is regarded as the last word in dormitory arrangement. In this building, which provided quarters for 110 men, study rooms are provided to accommodate two students each. These rooms are in suites of three, two study rooms and a sleeping porch situated between the two rooms. The sleeping porch is provided with four single beds and this provides the outdoor sleeping porch. This has the advantage of having a sleeping porch directly connected with the rooms, and the number of occupants is limited to four. This minimizes opportunities for disturbance as well as providing greater privacy and is much more satisfactory. The architects for Cochise Hall were Messrs. Lyman and Place of Tucson, Ariz.

The experience of twenty years has led the administration of the University of Arizona to the belief that this

Exterior view of Maricopa Hall, women's dormitory. A good view is given of opening for sleeping porches on three floors

Arizona Hall, men's dormitory. Interior view, showing arrangement of upper and lower sleeping porches, accommodating thirty beds on each floor. These porches extend around three sides of the patio and the upper and lower floors are seen in the background.

plan is thoroughly satisfactory. It affords rest and sleep in the open, the benefits of which are shown in the vitality and work of the students.

It is not unusual for students to make extraordinary gains in weight and endurance in remarkably short time and this is in part attributed to the dormitory plan. Few students are willing to return to indoor sleeping rooms after having had a semester's experience sleeping in the open air.

There are some features of the plan which are readily adaptable to localities where the climate is not so favorable as in Arizona. The plan of Maricopa Hall or of Cochise Hall is readily adapted to other situations and could be used in any climate where the plan of outdoor sleeping is endorsed.

Launching a Penny Lunch Room

By HAZEL M. SHULTZ, Chicago

TO OPEN a Penny Lunch Room during the last months of climax prices, and the first months of "No work," and still to hope to have it pay even twenty-five per cent of its cost seemed only the visionary idea of the inexperienced. Nevertheless such a school lunch plan was launched at just such a bad time, from a business man's point of view, and it was hoped to make it something of a financial success even though its primary aims were far from financial. The children to whom the food was to be served needed quantity and quality; but, more than either of these, what they needed was education with regard to those foods which contribute to childish health and happiness. The zeal of those interested in conducting this Penny Lunch project prompted a desire to make of it something of a financial success only because by so doing other lunches in other schools could and would then be attempted.

The community in which the work was started was such that the most effective method of teaching food values seemed to be that of demonstration, hence it was thought that a lunch room open to any one but established for children was a primary necessity.

The location was a bit unique in that it was less than a dozen short blocks from the magnificent capitol building of the state of Pennsylvania. In this community is a fair representation of almost any nationality; but the predominating races were Jews, Italians, Serbians, and Roumanians. Besides the foreigners there was a large colored population, and a few white American families were represented. Most of these people were far less poor in money than in education or ideals, for they had for the past several years been earning comparatively large wages.

As might be expected, there was much of vice to be found on these streets. The children were in some cases loved but badly cared for because of drunkenness or ignorance on the part of their parents; but in most cases they were regarded only as a burden until the day when they were old enough to at least appear fourteen years of age and be granted a work certificate. As the result of such an attitue on the part of parents it was not unusual to inquire of a child as to his breakfast and be told that he had had none or that it consisted of a glass of beer and coffee, dirty candy purchased on the way to school, or perhaps sauer-kraut from a tin can set in the middle of the table and from which every one helped himself according to his desires. Such living meant, of course, that the school attendance was always irregular and that the children in attendance could not do standard grade work because of their undernourishment.

At the suggestion of the teachers in the neighborhood grade school a community house had been established next door through the cooperation of the Child Welfare Organization. It had functioned for a year or more, and was unusually fortunate in having as its social worker a young woman who had not only been trained for community work, but who was so genuinely interested in this particular neighborhood that no project was too great for her to attempt, if it ministered to the real welfare of the people. It is not strange that with a background of interest such as this

A typical group of Scottie Street children who were served by the Penny Lunch Room.

Bad habits, prejudices, ignorance all were considered and all were routed in this group by the scheme of the penny lunch.

even the apparently impossible could be attempted.

Soup, Soap, and Salvation

Some missions hang a sign over their doors "soup, soap, and salvation" and such a slogan would probably not have been out of place in this little enterprise. According to the general plan the children were first to be given nourishing food and then taught. They were to be given the right kind of food, plenty of it, trained to a certain degree of cleanliness when eating or handling foods, and, lastly, taught why these things were being done for them. Certainly a place of demonstration was essential and it was decided that it should be a "Penny Lunch" in an unused room of the grade school building.

This room the Board of Education granted and with it a few benches, old desks, and a small table. The Child Welfare Organization provided the remainder of the equipment with the exception of a fireless cooker which the children of the neighborhood bought with their pennies and nickels. The fireless cooker together with a two burner gas stove and the occasional use of a range oven at the community house next door supplied the stove need. For the comparatively small sum of twenty-eight dollars a most satisfactory steam table was made by a tinsmith. It consisted of a galvanized tin box provided with a pet cock to drain away the water, and a gas jet beneath to keep the the water hot when in use. It had four holes for insets—the insets were extra kettles from the fireless cooker —and a little tin frame over the bottom to keep the insets up and prevent sticking and burning. This steam table was used not only to keep the prepared foods hot, but it was utilized to make cocoa, to warm buns, and to finish cereals and cornstarch puddings. Two tables and an exceedingly large cupboard, both of which had been used in a Red Cross sewing room, a set of aluminum serving dishes, such as were used during the war in cantonments, a few good kettles and knives, and many smaller utensils purchased in a ten cent store completed the simple equipment.

When on October 11, 1920, this business was, at last, ready to open its doors to the little patrons, it was found that no extensive advertising campaign would be necessary and that there were pennies a plenty. It was necessary only so to control the line that every child would have a chance to spend his pennies for the foods he wished. Older children went home for little brothers and sisters, some of whom could not ask in English for the foods.

The morning lunch would consist of a cup of milk and a bun or graham crackers, or cocoa instead of milk, or it might be a bowl of cereal with sugar and a cup of milk. Much of the time fruit, as prunes, apricots, stewed or baked apples, and occasionally stewed raisins were to be had. Each serving sold for one cent, and every child could choose according to his likes except that he was not permitted to select a lunch in which there was no milk. The best grade of milk was supplied and each penny portion was over five-eighths of a measuring cup full, allowing slightly more than one hundred calories to each serving. The cocoa was made of skimmed milk, for two reasons: first, because it could be bought for ten cents a gallon; and, second, it was desired that the children and community should learn the correct use of skimmed milk. They were to learn to use plenty of raw whole milk and to also take advantage of the low cost of skimmed milk in such cooked foods as were otherwise prepared with water. The number of servings which a child might have was governed by the number of his pennies, his appetite, or his size. Not every child came with enough pennies to buy a sufficient amount of food for his height and weight, to say nothing of his appetite. Such cases were usually investigated by the teachers and money in proportion to the individual need was supplied by interested persons or organizations; but every child paid for his lunch at the time that he received it and each was a self-respecting and honorable little citizen.

A Point of Honor

No one ever attempted to cheat in the lunch room, for such a thing was not well regarded; yet it was found that one little fellow who always came with an amazing amount of money was a member of a well organized group of boy thieves. Like the pirates of old, they buried their booty and dug it up according to the daily or weekly need. When questioned he revealed a startling attitude. He felt that this stealing was merely a business; but cheating on his lunches was a contemptible trick; "No good boy would do that," he declared.

To those who anticipate establishing a little lunch room, the question of labor is always a most important one. In this case the labor question was solved by almost perfect cooperation from everyone interested, and there were not a few people to be so classified. The social worker was the only person directly paid for work on this project, and she was paid to

It was not unusual among these children to find they had come to school with no breakfast other than beer or coffee, and sauerkraut with or without a crust of bread.

spend slightly more than a half day at this piece of work. Church and club women came on certain days assigned to them and assisted in the preparation and serving of the foods. A group of boys from the seventh and eighth grades formed a club and volunteered to wash the dishes and go for supplies. The teachers assisted by keeping in touch with the financial condition of the homes and indicating cases which were in need of outside aid. It is doubtful whether any volunteer group of women have been more faithful to a piece of work than were these club women. Out of ten, five came every week during the entire year, and two others missed but one week. Because of the volunteer help, the menus were very similar from week to week. The women arrived each day at ten o'clock, poured the milk, and arranged the crackers and buns, the cereals, cocoa, and fruits having been previously prepared. One woman seated herself at a card table on which was placed a small tin can cash register, and the other women assisted the children as they passed in line to get the foods they desired or should have. In a few cases true salesmanship was necessary in persuading a child to buy wisely. The woman at the cash register usually watched the pennies drop, and occasionally made change for a nickle or a dime.

The role of dishwasher became a lark to these boys because it was shared and self-imposed. These volunteer workers served the school year through.

Early in the year few children thought to wash their hands before coming in to eat; but, later, when a chart was hung on the wall and each child was encouraged to keep a record of his hand washing habits, a decided difference in complexion began to be revealed.

After the meal each child carried his dishes to the kitchen—a cloak room had been converted into a kitchen—where the boys stacked and washed them. Because of the fact that many of the children were orthodox Jews, soap could not be employed for dishwashing, hence it was necessary to find something that was not derived even in part from "pig" that would thoroughly cleanse the aluminum dishes used. Lysol proved to be most satisfactory, since it does not cause discoloration of aluminum which results from the free alkali of soap and, besides having antiseptic properties, it produces something of a suds. The dishes were all rinsed before washing, which practice helped in preserving the sudsy qualities of the lysol. With thorough rinsing after washing, no odor or taste can be detected on the dried dishes.

The matter of washing the dishes became a real pride with the boys, and, much to the surprise of all grown-ups concerned, they continued the "Dish Washing Club" until the end of the year. These boys also burned the garbage, and swept the floor each day. One chap was responsible for lighting the gas under the steam table each morning before the social worker arrived, which meant a saving of almost a half hour to her, since in this way the table was hot and ready for the making of cocoa, and to receive the cereal which was transferred from the fireless cooker to it.

The menus, as well as the equipping of the lunch room, certain of the plans for the daily routine work, and the financing of this project, were worked out in cooperation with a home economics extension service worker from the Pennsylvania State College. The menus were governed by several factors, chief among which were religious prejudices, perverted appetites, and the purchasing power of a penny, as well as the true nourishing qualities of the foods. There follow several typical menus. As much variation as possible was practised from week to week. The foods starred are the ones which, when sold for a penny, meant a money loss to the lunch room. At present wholesale prices almost none of these will mean a loss. The number of calories

Inattention attached to the issues in the matter of their important feeding was [illegible] the major cause than of [illegible] tion is behind [illegible] in children, their development suffering from it. Even if followed by adequate nourishment, the normal development of the muscles is permanently affected.

indicated in parenthesis after each food was computed upon the basis of United States Bulletin No. 28 "Chemical Composition of American Food Materials," according to the recipes used and the size of portions given.

Menu No. 1

1 cup cream of pea soup (100)
Baked potatoes
1 bun, baked* (70)*
½ cup milk (100)*
1 cup cocoa (125)
½ cup apple tapioca custard (1[illegible])

Menu No. 2

Vegetable stew (250)
Caramel cornstarch pudding, ½ cup (100)
Buns, milk, cocoa, graham crackers (2 for one cent), were always to be had.

Menu No. 3

1 serving spoon of baked meat (1[illegible])
1 cup creamed potatoes (1[illegible])
Sugar (on) (1[illegible])*
3 stewed prunes (100)

Menu No. 4

1 cup baked beans (200)
½ large baked apple (100)
Oven potatoes, potato cake (100)*

Menu No. 5

1 cup baked [illegible] and potatoes [illegible] tomatoes (1[illegible])
½ cup apricot tapioca (1[illegible])

Menu No. 6

Cream of [illegible] soup (110)
Baked [illegible] (100)
1 cup [illegible] [illegible] (1[illegible])
Cream cornstarch

Menu No. 7

Baked macaroni [illegible] (200)
½ cup stewed apricots (1[illegible])
Graham bread (1[illegible]) [illegible]*

Menu No. 8

1 cup macaroni [illegible] prepared with [illegible] and (1[illegible])
½ cup custard [illegible] (1[illegible])

Once a month a local ice cream dealer allowed the lunch room one gallon of ice cream for each gallon paid for and in this way ice cream appeared in the menus.

That this lunch room met a need was evidenced by the fact that a second one was established some two or three months later, and this year a third one has been installed in a third grade building. The school report proved the lunch's value by showing the highest increased percentage attendance on record, and a better grade of work done by those in attendance. The financial report showed that, aside from the salary of the social worker, this business had been more than 80 per cent self-supporting during the entire period.

In an early issue of THE NATION'S HEALTH an article will give an outline of the plan of work and will describe the results of a demonstration nutrition class conducted in connection with this lunch room.

Control of the Cardiac Diseases of Childhood

By JACOB SOBEL, M.D., Assistant Director, Bureau of Child Hygiene, Department of Health, New York City

IN DECEMBER, 1920, Dr. Royal S. Copeland, commissioner of health, City of New York, appointed a committee consisting of the Director of the Bureau of Child Hygiene, Director of the Bureau of Preventable Diseases, and the Director of the Bureau of Hospitals, to study and report upon methods for the control of cardiac diseases. At the time of this study, as Acting Director, I was delegated to formulate that part of the report which related to cardiac diseases in childhood. The second part of the report, dealing with the subject from early adolescence to adult life and old age, was assigned to Louis I. Harris, M.D., Director of the Bureau of Preventable Diseases. The following statements are presented as submitted in my report to the Commissioner of Health.

The members of the Committee realize the need and importance of the prevention, early detection, and prompt and proper care and relief of all cardiac diseases and abnormalities; the value of educational propaganda among physicians, nurses, social workers, teachers, parents and children; the growing disease incidence and mortality from these diseases in middle and later life; the possibilities of preventive measures; and the important rôle the Department of Health can play in this program.

Cardiac Efficiency

In view of the loose use of the term "cardiac" or "heart disease" by physicians, nurses, and health departments in general, the many and varied classifications adopted by workers in this field, the diverse interpretation and importance placed upon different physical signs and symptoms, and the insistence by some specialists upon the use of elaborate instruments of precision for arriving at a correct diagnosis, the Committee feels, and so recommends, that the first and most important action to be taken in any community program for the study, prevention and control of cardiac diseases should be the designation by the Commissioner of Health of a Committee of Pediatrists and Internists to agree upon and formulate practical, clinical, standard diagnostic criteria, and classifications of cardiac diseases, disturbances, and abnormalities.

The old conception of cardiac disease—the murmur conception—is now passé. To many the heart with a murmur, is of far less serious import than muscular disease of the heart or arterial disease of the cardiac arteries, often unassociated with a murmur. There is a great deal more to cardiac disease than murmurs—the capacity of the heart for work, the exercise tolerance, is now the determining element of importance. Furthermore, many signs and symptoms heretofore considered diagnostic of cardiac disease, as such, are no longer deemed of serious import. There is no doubt that many conditions in children and adults are erroneously termed cardiac disease. On the other hand, many serious cardiac diseases and conditions are overlooked or undiagnosed because of the conception in the minds of many physicians that a murmur is an essential and necessary feature. The entire subject is one that is now being studied by the best medical thought, and consideration and control of the subject, from the public health point of view, will be productive of the best result if we have as a basis, a classification of kind and degree to work upon, such as the standard classification herein recommended will afford.

This recommendation carries with it the suggestion that the State Commissioner of Health be requested to designate two members, with a view that the standardization be accepted by the state as well as by the city, and that the members of the present Committee be designated as ex-officio by the new Committee.

The Department of Health is naturally concerned primarily with the prevention of cardiac disease and with the institution of such measures, through its various agencies, as will minimize the further extension of the process in those already affected. In any community program the subject of cardiac disease control must be considered and approached from two angles; first, cardiac disease in childhood, and second, cardiac disease in adult life.

As Affecting Childhood

Congenital cardiac disease is beyond public health control. The most that can be done is to educate and advise parents as to the greater susceptibility of such children to infection and intercurrent conditions and to emphasize the importance of extraordinary care in their daily life. Regulation of daily routine, of exercise, avoidance of undue exposure, and vocational guidance are the limits of possibilities.

Under six years of age, acquired cardiac disease is relatively infrequent. At this age however, and particularly during the pre-school age—from two to six years—many conditions exist which, if disregarded or neglected, act as predisposing factors for the establishment of cardiac disease in later childhood—the school age—six to sixteen years. The Committee therefore feels that there is opportunity for public health education during this formative and plastic period of childhood along the following lines:

(1) The need of more frequent physical examinations during the pre-school age period, and the correction of remediable physical defects. Parents should be urged to have these children examined by private physicians, hospitals, clinics, dispensaries, in a special "pre-school age clinic"—a number of which have already been established in New York City—or at the baby health stations of the Department of Health and other agencies.

(2) Removal of abnormal and diseased tonsils as a potential source of rheumatism, and the most frequent cause of cardiac disease in children.

(3) Greater attention to nasal hygiene—teaching these children, wherever possible, the proper method of blowing the nose and using the handkerchief. Removal of adenoids and correction of other defects of nasal breathing.

(4) Maintenance of a proper standard of nutrition, through education of the parents in the proper purchase, selection, preparation and care of food with regard to the needs of growing children; regular periods of feeding; establishment of good health habits—mastication, sleep, ventilation, exercise, rest, fresh air, avoidance of tea and coffee, etc.

(5) Emphasizing that recurrent tonsillitis and enlarged tonsils are often forerunners of rheumatism and cardiac disease.

(6) Education of the public as to the dangers of cardiac complications following the infectious diseases of childhood—the need of prevention, the importance of early and proper isolation of the affected person, the value of prolonged rest in bed during the course of the disease, and the advisability of very gradual return to daily routine and exercise after these diseases, and indeed after every febrile disease of whatever nature.

(7) Further education in oral hygiene during the pre-school age period—daily cleansing of the mouth and teeth, correction of dental caries and defects.

(8) Prevention of respiratory diseases in early childhood through publicity measures heretofore outlined; dangers of coughing, sneezing, spitting; contact with other members of the family; proper ventilation in the home; danger of mouthing toys and other articles; avoidance of wet feet, exposure, fatigue, etc. These should be emphasized especially in the case of families forced by necessity to live in basements which come perilously close to being cellars.

(9) Greater regard for so-called "growing pains" which are also potential signs or forerunners of rheumatism.

(10) Improvement of the emotional and temperamental stability of these young children through: (a) Education of the parents as to the importance of environment and home training. (b) Proper food, hygienic and living conditions, personal and home hygiene. (c) Modification of the kindergarten system. At present the transition of the child from home to school is too sudden. He is often bewildered, with the result that he frets and worries and becomes discontented or unhappy or worse. He should be taken more gradually into his new environment. The kindergarten registration at the present time is too high for one teacher to supervise, and the kindergarten should be made to conform more nearly to the Froebel idea.

(11) There should be more open-air play, and certainly more open-windows in the classrooms than is the case at present. Improper kindergarten conditions predispose to fatigue, depression, emotional instability, lack of resistance and malnutrition. If children must be sent to school at an age as early as five or six years, it seems to the Committee to be a community responsibility that they should be placed under the most favorable conditions possible.

The Heart of the School Child

At six years of age the child goes to school. In the opinion of the Committee, it would be better if eight years were established as the age of admission to school instead of the present age of seven as required by the Compulsory Education Law. The child is now transplanted from home to school environment, from the individual care of the mother to the divided care of the teacher. He comes in contact with many new faces, ideas, surroundings, and people. He is subjected to greater discipline and does not get "what he wants when he wants it." He has certain responsibilities of study and competition. He is "let loose" in a sense and becomes more active. In fact, in many instances, he is perpetual motion itself. Greater exposure, greater contact, greater activity, mean greater possibilities of strain, fatigue, and infection. Thus, cardiac disease is more common during the school age than during the pre-school age period.

The experience of the Bureau of Child Hygiene, based on many years of observation and study, indicates that.

(1) Approximately 2 per cent of the elementary school population is suffering from cardiac disease. The term "cardiac disease" as herein used is to be interpreted as indicating one or other form of chronic endocarditis, with murmur. This percentage might be found to be slightly higher were it possible to examine these children under more favorable conditions. Holt estimates that 2½ per cent of the child population of school age has cardiac disease. Examinations conducted by inspectors of the Bureau of Child Hygiene showed that in recent years, that the percentage of cardiac disease found among school children of the elementary schools, was as follows:

1915	1.5%	1918	1.6%
1916	1.9%	1919	1.5%
1917	1.8%	1920	1.3%

(2) The percentage of cardiac disease in elementary school children based upon a study of 356,299 physical examinations at all ages—figures for 1909—shows a gradual increase from eight to fourteen years of age, slightly higher in girls than in boys. The percentage of cardiac diseases is somewhat higher among high school pupils than among those of the elementary schools. This gradual increase from eight to fourteen years of age may be accounted for by the following considerations:

(a) The existence of abnormal or diseased tonsils and adenoids, and failure of parents to have these foci of infection removed at any early age. (b) The greater amount of dental decay and pulp infections found in children of the older age groups. (c) The fact that children of the older age groups resort to more violent exercise with resultant greater exposure, and more frequent respiratory infections, especially influenza. (d) The greater amount of improper and irregular feeding in the older children resulting in lowered vitality; also the ill effects of mal-nutrition which are carried over from the younger years—eight to ten—and which offer a point of least resistance. (e) Increase in the amount of chorea and nervous diseases found among boys and girls from eight to fourteen years of age, reaching its maximum at the fourteenth year.

(3) The 2 per cent estimation above mentioned corresponds closely to:

(a) The percentage found by private physicians in the case of physical examinations made in accordanace with Section 200 of the Sanitary Code (1.9 per cent). (b) The examinations conducted by the Division of Institutions of the Department of Health (1.9 per cent). (c) Specal examinations now being conducted by the Bureau of Child Hygiene of the Department in the Borough of Manhattan for admission to special classes conducted by Dr. Halsey (2.3 per cent). (d) A large series of examinations conducted several years ago by the Bureau of Child Hygiene in the Borough of Brooklyn, under the personal direction of the district medical supervisors (1.5 per cent). (e) A large number of examinations conducted by Dr. St. Lawrence in one of the public schools in Manhattan, in cooperation with the Bureau of Child Hygiene.

who reports slightly over 2 per cent.

(4) The causative factor of cardiac disease in children is predominantly rheumatism—acute infectious arthritis. It has been estimated that the majority of cases have this etiology in childhood. Rheumatism as herein used, is to be considered active or potential, the latter including chorea, recurrent tonsilitis, growing pains, joint pains, and muscular pains. Next in order come the infectious diseases of childhood—scarlet fever, diphtheria, whooping cough, measles; then decayed teeth; and, finally, the respiratory diseases—influenza and pneumonia in particular.

(5) If, in addition the chronic endocarditis with murmur, which forms the basis of our 2 per cent estimation already noted, we were to include other types of cardiac disease and abnormalities, not infrequently found in school children, such as hemic murmurs (now termed "insignificant cardiac murmurs"), neurocirculatory asthenia,—corresponding to the "disturbed action of the heart" found in soldiers—various irregularities, myocarditis, etc., the number and percentage of cases of cardiac disturbances among children of elementary school age would be increased.

Preventive Measures

(1) All of the general measures outlined for the pre-school age period, apply with equal or even greater force to the period of school life.

(2) Further emphasis should be laid upon instructing parents as to the relation of the abnormal and diseased tonsils to rheumatism and cardiac disease and to secure removal of these predisposing factors. The relation of recurrent tonsillitis and other rheumatic manifestations to heart disease is so important that a circular used in the children's heart clinic at St. Luke's Hospital is herein incorporated as suggested copy to be used for general distribution by the field force of the Bureau of Child Hygiene.

St. Luke's Hospital—Children's Heart Clinic

Heart [illegible] almost always occurs as the result of acute rheumatism, St. Vitus Dance or chorea, growing pains in the joints, or repeated attacks of sore throat. Because of their relation to the heart, these conditions are most important and every effort should be made to cure them and prevent their recurrence. Much can be done in this direction and if successful the heart may be spared [illegible]

Heart disease does not always make itself known at once, as a serious condition may be present without giving symptoms. Therefore, occasional examinations are advisable. Usually, however, serious disease may be detected by shortness of breath, palpitation, and rapid beating of the heart.

To cure and prevent the recurrence of these rheumatic conditions and to properly care for hearts already diseased, diligent and intelligent management over long periods of time is absolutely necessary. If your child suffers from any of these conditions, it should be examined at the heart clinic and, if advisable, enrolled in the special class. With your earnest cooperation the results may be measured in years of happy life, and, at times, in life itself.

(3) Continued and intensive medical inspection of school children for the early detection and quarantine of infectious diseases.

(4) Further propaganda to educate parents as to the dangers of decayed teeth as foci of general infections and of cardiac disease.

(5) Instruction in health and food habits—avoidance of tea, coffee, cigarettes, etc.

(6) Avoidance of strain, overexercise, fatigue, undue exposure, etc.

(7) The Director of the Bureau of Hospitals will forward periodically to the Director of the Bureau of Child Hygiene a list of names, showing ages, addresses, nature and severity of the infectious disease, and special indications for follow-up of all cases discharged from the departmental hospitals. Special attention will be given to these cases upon their return to school.

(8) Special attention, similar to the above, will be given to all cases of infectious disease returning to school from their homes after recovery.

(9) Greater selection by teachers, as regards school studies and home work of children handicapped by neurotic temperament. It seems to the Committee that less home work, in general, for school children, is advisable. Many children are pressed too hard and the curriculum overburdens them.

(10) Increase in the number of open-air classes in public schools. If this is impossible, open-window ventilation should be established in place of forced ventilation. A study made several years ago by the Director, Bureau of Child Hygiene, in cooperation with the State Ventilation Commission showed that: (a) Children in classrooms with closed windows and ventilated by mechanical methods were more subject to respiratory diseases severe enough to keep them from school attendance than were children who were in classrooms kept at the same or lower temperature and ventilated wholly by open windows. (b) Children in classrooms with closed windows and ventilated by mechanical methods were more subject to respiratory diseases not sufficiently severe to keep them from school attendance than were children who were in class rooms kept at the same or lower temperature and ventilated wholly by open windows.

(11) Shortening school sessions. It is recommended that school hours be only from nine-thirty o'clock to noon and from one-thirty to three o'clock. These hours would afford greater opportunity and time for proper breakfast and lunch, minimize hurry, excitement and bolting of food, indigestion and mal-nutrition—all predisposing factors to neurosis and cardiac disturbances.

(12) Parents should be urged to be present at the time their children are physically examined by the school medical inspectors. This would afford (a) an opportunity to notify parents directly of the defects found and the indications for treatment, and (b) the possibility of examining the child with chest exposed, with greater likelihood of accurate diagnosis. This procedure, while valuable for defects in general, is of special importance in the case of cardiac derangement.

Occurrence in High School Age

Fourteen to Seventeen Years: In proportion to their number, cardiac disease appears to be slightly more frequent among pupils of the high schools than among those of the elementary schools. This is the age of early adolescence, with physical, mental, and emotional changes which make these pupils more susceptible to disease in general, if not to cardiac disturbances. Goiter in high school girls with disturbed cardiac action is not infrequent. Greater application to study, greater exposure, greater likelihood of rheumatism and rheumatic manifestations, greater prevalence of nervous symptoms, and of dental decay—all predispose to organic and inorganic cardiac disease.

The indications for prevention of cardiac disease and for its relief and care so as to minimize the severity and extension of the process are practically the same as those outlined for the school age. It may be advisable to pay more attention to goiter in adolescent girls and to urge the use of small doses of the iodids, administration of which has been found successful, by many physicians.

The prevention of cardiac disease in children, as indeed of all diseases of childhood, rests upon an appreciation of the fact that the various age periods — infancy, babyhood, preschool age, school age, early adolescence—are not sharply defined but are correlated, in that the various insults—psychic, dietetic, hygienic, etc., instituted during the early age periods produce lasting ill effects in later childhood and adult life. It may be

stated in general that the great desideratum in the prevention and care of cardiac disease in children is regulation rather than restriction.

With an increased knowledge of the actual and potential causes of heart disease in children and the possibilities of prevention, relief, and care, there has arisen a desire to afford these children specialized and more or less individual care and treatment. To this end, various workers have organized cardiac classes. These classes are of two kinds: (1) Those maintained in or adjacent to school buildings, and (2) those organized at various hospitals.

The organization of these two types of classes varies considerably. The cardiac classes maintained in schools are special classes in which groups of children affected with cardiac disease are segregated. There is no separation of the sexes and children of all grades are admitted. These classes are maintained by and under the supervision of the Department of Education. The children are afforded rest, regulation of food, limitation of study, graduated play and exercise, protection against undue exposure, etc. There are many enthusiastic advocates of this plan who say that the congenial surroundings *et al* limit further extension of the disease, prevent complications, and make the children happy. On the other hand, there are those who oppose these classes on the following grounds: (a) That segregation has a bad psychic effect upon the children, especially upon girls. (b) That if the cardiac disease is serious enough to warrant care in a cardiac class the child is ill enough to remain at home. (c) That better supervision can be exercised by the teacher when one or two cases of cardiac disease exist in a regular class than when twenty to twenty-five cases of cardiac disease are congregated under the care of one teacher. (d) That these classes are less conducive to proper education, since one teacher is assigned to instruct pupils of various grades. (e) That the majority of children affected with cardiac disease are able, without danger, to engage in normal play and exercise, and that regulated play and exercise can be secured through the teacher when she is informed by the doctor and nurse of the indications, such as, avoidance of stair climbing, use of separate stairways, non-participation in fire drills, permission to arrive at school a little later and to leave a little earlier, etc.

In the main it is held that the advantage of the regular class for these cases is that the child is not made conscious of the fact that he is separate and apart from his fellows—a hothouse plant requiring special attention while at the same time by careful direction he is shown the need of caution along certain lines. It is to be remembered there are many children who have physical signs of heart disease—organic murmurs—without any subjective discomforts and without other involvement of the heart. They are perfectly comfortable and require no special care. To remind them constantly that they have heart disease or to place them in cardiac classes would necessarily be detrimental. These cases call for tact and judgment as regards instruction to parents, teachers, and pupils. These children must be carefully watched and safeguarded and instructed in the rules of healthful living, without undue emphasis upon the heart condition.

In view of the division of forces among the profession in the matter of cardiac classes in the schools, it is recommended that:

A special committee be appointed by the Commissioner of Health to study this phase of the problem with a view to making special recommendations.

Cardiac Classes at Clinics

These are really special cardiac classes or children's heart clinics, maintained at different hospitals for potential and actual cases of cardiac disease in children. They strive to educate parents, social workers and children in preventive measures and to institute necessary remediable measures, such as graduated exercise and drills, regulated according to the working capacity of the heart or its exercise tolerance. Special days are set aside for visits to the clinics. Social workers visit the homes and efficient cooperation is established between the doctor, the social worker, and the home, provision is made for necessary operations and special examinations, and, finally for convalescence at summer homes. In the opinion of the Committee, these cardiac clinics are of great value and a step forward in the prevention and control of heart disease in children.

Homes for Cardiac Children

During the stage of early or late decompensation, children with cardiac disease require special care, far greater than can be afforded in the homes of the poor. The general wards of city hospitals do not answer the purpose. In the treatment of certain cases of cardiac disease in children, the mind as well as the heart must be put at ease. Surroundings have much to do with this, and a home in the country affords an excellent opportunity. There is an insufficient supply of these homes to meet the demand. It is extremely difficult to secure admission for this type of case into the ordinary convalescent homes because they hesitate to assume responsibility as they know that it requires constant and careful supervision. The Committee therefore commends all efforts made to establish and maintain homes for children with cardiac disease, and express the hope that the number will be materially increased within the near future.

In concluding the presentation of cardiac disease in children, the Committee feels that there should be a more common and general understanding of what is meant by "heart disease" or "cardiac disease" in children. If we accept that term to convey only the old idea of endocarditis with murmurs, the number of cases will be much smaller than that which actually obtains, since it does not include other types of cardiac diseases and disturbances, such as, myocarditis, insignificant cardiac murmurs, hemic murmurs, neuro-circulatory asthenia, etc. Since rheumatism is the most common cause of heart disease in children, and since recurrent tonsillitis, chorea, growing pains, joint pains, muscular pains, are potential rheumatism, the importance of these manifestations, from the preventive standpoint, is easily appreciated, and should be the direct point of attack.

Recommendations

In considering the subject of heart disease in children, it is necessary not only to know the type of cardiac disease but its degree of severity. Inasmuch as a proper classification of heart disease in children will mean much, not only for the guidance of physicians but for follow-up work of the nurses and social workers in the homes, it is hoped and anticipated by the Committee that a special committee of pediatrists and internists, as suggested in this report, will be appointed to formulate a standard and classification which will be used in common by all physicians and community workers of the city and state.

(1) Consideration of the subject of heart disease from the community standpoint must be approached from

two angles: (1) cardiac disease in childhood—up to sixteen years of age; and (2) cardiac disease in adult life—from sixteen years upward. The causes—immediate, predisposing, predominating, exciting—the types of involvement, the prognosis, methods of approach and other factors, vary considerably at these different periods of life.

(2) Cardiac disease is relatively infrequent up to six years of age. Much of a preventive nature can be accomplished during this formative period. Periodic physical examinations during the pre-school age—two to six years—should be encouraged with a view to detecting and correcting remediable physical defects which predispose to cardiac involvements in later years and to educating parents as to the results of healthful living which make for healthier childhood.

(3) Approximately 2 per cent of the pupils of the elementary schools have cardiac disease—chronic endocarditis with murmur. This figure is conservative. If it were possible for the medical inspectors to conduct physical examinations under more favorable conditions and if we were to include other cardiac diseases, disturbances and abnormalities, this percentage would be somewhat higher.

(4) Cardiac disease in school children is found with increasing frequency from eight to fourteen years of age, reaching its height at the fourteenth year. This increase is very gradual. The percentage of cases is slightly higher in girls than in boys. This gradual increase in cardiac disease seems to keep pace with the percentage of chorea and nervous disease which are also found to increase from the eighth to the fourteenth year.

(5) The predominant causative factor of cardiac disease in children is rheumatism or rheumatic manifestations—chorea, recurrent tonsillitis, joint disease, so-called "growing pains," muscular pains.

(6) Education of the public as to the relation of rheumatism and rheumatic manifestations to cardiac disease, either by word of mouth or literature—will be productive of great good. It must be understood however, that such instruction must be very carefully prepared so as not to cause undue excitement or fear on the part of parents or pupils.

(7) Infectious diseases, decayed teeth and respiratory involvements are the next most frequent causes of cardiac diseases, in the order named.

(8) Children returning to school after discharge from a departmental contagious disease hospitals and those returning to school after treatment at home for infectious diseases, should be and will be more carefully supervised in future, with special reference to the heart or to any possible complications and sequelae following these diseases.

(9) The percentage of cardiac disease is somewhat higher among high school pupils than among pupils of the elementary schools. Adolescent goiter with cardiac disturbance is comparatively frequent among high school girls and responds to small doses of iodides in many instances.

(10) Prevention of cardiac disease and in fact, of all diseases of childhood, depends upon appreciation of the fact that all age periods under sixteen years of age are interdependent and correlated and that care and preventive measures during one period often carry on to later years.

(11) In view of the sporadic organization of cardiac classes in public schools and the division of professional opinion as to their value and usefulness a special committee should be designated to study this problem and to submit definite recommendations.

(12) Homes for cardiac children fulfill a demand and their establishment and maintenance should be encouraged and supported.

(13) The great desideratum in the prevention and care of cardiac disease in childhood is regulation rather than restriction.

Heads Health Association

BOTH by experience and personality Dr. Allan J. McLaughlin, the new head of the American Public Health Association, is unusually well qualified for the honorable post to which he has been chosen and much is anticipated of his administration.

From 1900 until 1902 he was engaged in the medical examination of arriving aliens at the port of New York. In 1903 and 1904, he served at the Bureau of Public Health Service in Washington as assistant to the Surgeon General.

Dr. Allan J. McLaughlin, elected head of the American Public Health Association, brings to that office a long and creditable experience in the wider issues of health administration.

Dr. McLaughlin was in charge of the Federal investigation of the relation of the sewage pollution of the Great Lakes and Missouri River to the prevalence of typhoid fever, and in 1913 and 1914, was Chief Sanitary Expert and Director of Field Work for the International Joint Commission. Under his direction the sewage pollution of more than two thousand miles of boundary waters between the United States and Canada was investigated. Seventeen laboratories were established and over twenty thousand samples of water analyzed.

Dr. McLaughlin assumed charge of the Massachusetts Department of Health in 1914. He reorganized the department and remained at its head as Commissioner for a little over three years. After the entrance of the United States into the World War, Dr. McLaughlin was recalled to the Public Health Service and placed in charge of the protection of the health of the military forces in the extra-cantonment areas. Since the war he has been in charge of the Division of Domestic Quarantine, which is charged with the duty of the suppression of epidemics, bubonic plague, Asiatic cholera, typhus fever, yellow fever, and smallpox, and in the prevention of the spread of all communicable diseases from one state to another. This division is really a "States-Relation Division," and Dr. McLaughlin has utilized the state and local machinery in a system of cooperative control of water supplies used in interstate traffic and in the prevention of the spread of disease from one state to another.

"Vital Facts About Cancer"

The JOHN HANCOCK MUTUAL LIFE INSURANCE COMPANY has joined heartily in the movement initiated by the "American Society for the Control of Cancer" to spread information in regard to cancer, especially the fact that if taken in its early stages this dread disease may be actually cured.

The Company believes that the very announcement of this policy is enough to stimulate its agents in all sections to get this idea out as quickly and as widely as possible, and we have asked them to see that every one of its policyholders and their friends have copies of our leaflet entitled "Vital Facts about Cancer."

We believe that the more they can distribute the better, for a timely use of this leaflet may save many a valuable life.

We will be pleased to supply this leaflet to anyone desiring it upon application to the MEDICAL DEPARTMENT of the Company.

John Hancock

MUTUAL LIFE INSURANCE COMPANY

BOSTON, MASSACHUSETTS

The Psychology of Posture*

By FLOYD A. ROWE, Director of Physical Education, Lansing, Mich.

THERE can be no gainsaying the strength or truth of the statement, "A task bravely and confidently begun is half done." In actual reality this is just as true of good posture and its attainment as of any other concrete human desire. One may say that the attainment of good posture is one of the human desires which is not particularly dominant. Perhaps it is not of itself but indirectly, or in vocational phraseology, one of the by-products of good posture is a very desirable thing and its possession is often thought to be one of the most priceless of all of the human desires, simply—*good health*.

Now as to whether good health is an attribute of good posture or *vice versa* is beyond the scope of this article to decide. There can be no questioning, however, that good posture is an excellent index to good health. Picture, if you will, the "old folks" you know intimately and personally. Which are the ones bent over and making use of canes and other supports, and saying that their health is only "tolerable good" or that they are not as well today as yesterday, etc., etc.? Then on the other hand picture the ones who sit up straight even when resting in a rocking chair and those who walk with head up and a smile on their faces. If canes are carried by these, it is for the purpose of giving them something to carry, something to do things with, not to be of assistance in getting around. There can be no question but that good carriage and posture do very truthfully tell the story of physical energy and well being when applied, as above suggested, to our older friends and relatives.

How about the younger folks? Does the same principle apply to them?

Think again of the most attractive of your friends, the ones who stand out, the ones who attract the glances of the passers-by, the ones who are the life of the party; are they the ones who walk with their heads up and their chests up or do they go along hanging their heads and awkwardly swinging their arms? When you have done something in which you feel justifiable pride, do you slouch around with hands in pockets and eyes on the sidewalk with a frown on your face? Well, not exactly. Your head is up, you are looking everyone in the eye with a smile on your face. Your shoulders are squared and you go about with a little spring in your step.

One step further in the age scale. Does the boy—or girl either, for that matter—who has an abundance of good health, the boy with freckles on his nose, a contagious grin, and his pockets full of marbles and other "useless junk"—does he come into the school room on his tiptoes with an apologetic air, or does he stalk in without due respect for the presence of his dear teacher?

A rather hurried survey will tend to show that abundance of health and good posture have a very direct correlation one to the other. A further and more thoughtful analysis will show that this posture-health coefficient is even greater than at first estimated. Watch your friends for a week and you will be surprised more and more to note the ever increasing mass of visual evidence you will secure which goes to prove that good posture and good health are practically synonymous.

There are other personal attributes of which good posture is an excellent index. Most of the really successful young business and professional men have good posture. Kindly note the use of the word "young" in the foregoing sentence. As age advances some of these successful young men lose their good posture due to lack of exercise, overeating, sitting at desks, etc., etc.

Good posture is also an index to character. You like to talk to that person who sits or stands properly and who looks at you and gives entire attention to the things you are

Illustrating center of gravity in correct standing posture.

*Printed by courtesy of Public Health, publication of the Michigan Department of Health.

THE high esteem in which Colgate's Ribbon Dental Cream is held by representative physicians, surgeons and members of the nursing profession needs no explaining to those who understand the full force of traditional obligations.

It is believed that Colgate's Ribbon Dental Cream is in every respect worthy of the name it bears, and that there is ample foundation for its enduring popularity with the better minds in dentistry and medicine.

A generous supply of samples will be sent upon receipt of request on your professional letterhead.

Welfare Dept.,
COLGATE & CO.
Established 1806
New York, N. Y.

saying. You expect more of such a person than of one who looks at everything except the person speaking, who shifts weight uneasily from one foot to the other, or who sprawls out in a chair, crossing and re-crossing feet, or toying with every object within arm's length. You have for years associated sneak with thief and you expect the opposite in the square-shouldered straightforward person who looks you in the eye; you are seldom disappointed in your analysis of character on the above purely postural basis.

Books, leaflets, and magazine articles by the score have been written on posture, the way to secure it and how to measure it. Valuable as it is and hard as it seems to be to secure and measure—judging from all of the above mentioned articles—there seems to be one way only in which to secure a really accurate and at the same time scientifically sound measure of posture. Almost all postural defects are either caused by or are the result of the pull of gravity upon the human mechanism which we call the body. Good posture then is the result of a winning fight of the human mechanism, muscles, and will power against the pull of gravity. Poor posture is, on the contrary, the result of a losing fight between the same two opponents. Therefore if a measure of posture is desired the same can be secured by removing the body from the pull of gravity and measuring its total length. Dividing then the length of the body when standing subject to the pull of gravity by the length of the body when not subject to the pull of gravity one would get an absolutely accurate and corect mathematical percentage which would serve to measure the correctness of posture.

But you at once say that the human body cannot be removed from the pull of gravity, which is of course true; but if the body in question be placed in a supine position upon the floor there is no pull of gravity which will in any way affect its length. Measuring then the person standing and again lying and dividing one by the other we secure immediately the postural percentage of the person. This per cent of posture will vary in actual cases from 95 per cent to 99 per cent. The lower limit is of course variable and depends in individual cases upon how one is feeling at the time the standing measurement is taken. The more dejected or physically tired the individual is at the time of the measurement, the poorer it will be. Here again posture and physical or mental feeling show a remarkably close correlation.

Not Difficult to Attain

How to attain good posture and its corresponding benefits is no more difficult than its measurement, provided there is a "will" to do so. With adults then the "will" to attain good posture plus the knowledge of what good posture really is constitutes the entire program, for "to will is to do" in this instance. With children, however, good posture is really a natural state of existence. Children are forced into unnatural and harmful postures by attendance at school and by many of the tasks about the home. Without question, the greatest element which enters into the making of poor posture among children is that of mental attitude. Ask a child to perform some task which is considered disagreeable and which the child does not wish to do. The first symptom of unwillingness is facial, followed by a bodily slump in posture. The head is hung, the shoulders dropped, and the entire posture of the child instantly suffers because of the mental reaction. Offer a suitable reward for the accomplishment of the task, however, and there is an immediate reversal of posture. In school parlance, then, motivate the work for the child in order to lift it out of the class of drudgery.

This same difference can be found between the way a child gets out of bed on school mornings and on Saturday morning. There is a decided difference in both mental and physical posture or attitude. Willie has to be repeatedly called on the school morning, and when he finally appears he has a hang-dog look; he does not enjoy his breakfast, much less the regulation face washing, tooth brushing, etc., preliminary to it. But on Saturday morning, "Oh, boy!" Willie is up and coming, he actually splashes water about when he washes, and his breakfast disappears as if by magic, he can even be persuaded to run cheerfully an errand or two before he is allowed to start in on a day of unalloyed pleasure. Saturday morning, Willie has good posture; he has it as a natural physical attribute; he has it in the superlative degree and without thought or without admonition from his parents.

Any book, monograph, pamphlet, or magazine article ever written upon posture has much to say regarding position of the chest, shoulders, abdomen, chin, head, arms, etc., etc. The usual commands or directions are about as follows: Head erect; chin in; chest up and out; abdomen flat or in; shoulders back; weight on the balls of the feet. The average person trying to get good posture from commands of this sort assumes exaggerated position which is positively deforming and which is so unnatural as to be extremely bad for everyone. This exaggerated position is hard indeed to correct, as one instinctively feels that posture to be good must be "felt" and one surely feels, or is conscious of this position assumed upon hearing or thinking of the ordinary directions given.

"Prick Your Ears Up"

Several years ago Dr. C. Ward Crampton used one expression among many others regarding posture and the way in which good posture was to be assumed which seems to be without a fault or possible criticism

Seats not large enough cause students to assume faulty posture.

How the Right Shoes Increased Her Sales

A true story with a lesson for all men and women

"MISS GREEN, you and eight other girls out of seven hundred have shown increased sales during the last three months. All the others show losses. Why have you been able to increase your sales?"

"Who are the eight girls" asked the young woman.

The president of the store read the names. The girl seemed happy to answer:

"Shoes Cantilever Shoes. I get them first. Later I took each of these girls, a turn, to the Cantilever Shop. In Cantilevers, you see, our minds are off our feet. The business gets all our attention. We don't feel cross, tired or tense. I suppose that's why our sales are good."

That afternoon the president of the store walked into the Cantilever Shop and asked a salesman to explain the features of Cantilever Shoes.

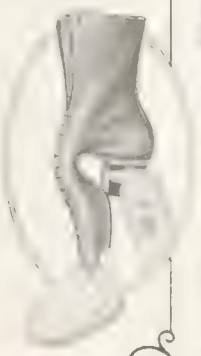
The Cantilever salesman took a shoe and bent the sole at the shank, showing how the shoe conforms to the human foot, even to having a flexible arch like the foot. He said, "the arch of the foot should flex with every step, according to nature, yet ordinary shoes are made rigid by a concealed metal shank-piece that forbids free movement of the muscles. There is no rigid shank in Cantilevers. The 'waist' is designed to flex at every step, the shoe fits and supports the arch restfully. The flexibility allows the arch muscles free play and this, together with the natural lines of the shoe, permits perfect circulation.

"It is important to allow the foot muscles to exercise, to keep well and strong. The interest of a Cantilever Shoe is shaped to look well, while allowing the toes to lie in their normal position. Cantilever shoes are moderately high at the heel enough to be smart, without throwing the body out of balance as is exaggerated heels do, causing unnatural strain on the nerves and the internal organs. By wearing Cantilever Shoes a woman avoids backaches and headaches, nervousness, irritability and nervousness. She is brighter and happier."

"The subject is of great importance to the business woman since it is passed during the greater part of the working period. The latter hours of the afternoon [illegible] of the day's work may be attributed to [illegible]
Dr. Wilfred Lucas, Chief of the Department of Public Health of Philadelphia

"Pain is a great [illegible] Correct [illegible] Pain is not [illegible] able, you are apt to be peevish and [illegible] Eliminate as many of your worries as you can [illegible]
Grace Margaret Gallagher, Good Looks in Women's Home Companion

"Workers with the best [illegible] persist in [illegible] efficiency and [illegible]
—Dr. Lillian M. Gilbreth, Psychology of Management



If no dealer [illegible] at the right is near you [illegible] MORSE & BURR CO., No. 1 Cantilever Avenue, Brooklyn, N. Y. [illegible] you the Cantilever Shop Booklet and the address of a nearby agent.

Cantilever Shoe

comfortable-goodlooking

Cantilever Stores

[illegible] 11 Orpheum Annex
[illegible] Bon Marche 1 Lee Ave
[illegible] Cohen's & Co
[illegible] Co. B. Mayer
[illegible] Co. N. Cohen
[illegible] Bon Ton
[illegible] D. Bonnell Co
[illegible] Nusbaum
[illegible] Mayer
[illegible] Hall
[illegible] Mayer
[illegible] Shoe Co
[illegible] Shoe Co
[illegible] Hall & Sons
[illegible] Bldg
[illegible] Shoe Co
[illegible] Mayer
[illegible] Gossard Co. 114 Peachtree Av
[illegible] Savings Mart Bldg
[illegible] Co
[illegible] Co
[illegible] Shoe Co
[illegible] R. M. Newell & Son
[illegible] The Rosenbaum Co
[illegible] A. T. Hall & Son
[illegible] W. L. Wilson Co
Detroit—T. J. Lawrence, 31 E. Adams Ave
Evansville, Ind.—Gus Fendrich, Locust Ave.
Ft. Payne—Popular Dry Goods Co.
Ft. Worth—Wolfe City Shoe Co., 308 Main St
Grand Rapids—Herpolsheimer Co., Monroe St
Greenville, S. C.—Piedmont Shoe Co.
Hartford—Oppenheim & Nichol, 84 Main St
Harrisburg—Pfoutz Shoe Co., 21 N. 2nd St
Huntington, W. Va.—M. M. Dodd Co
Indianapolis—L. S. Ayres & Co
Jackson, Miss.—Palmer Co
Jacksonville—Gunter's Bootery
Jersey City—Bonnell's, 421 Central Ave.
Johnstown, Pa.—Zang's
Kansas City, Kan.—Newton Shoe Co
Kansas City, Mo.—Bon Ton Millinery Bldg
Knoxville—Spurgeon Shoe Co
Lancaster—Frey's, 14 E. King St
Lansing, Mich.—N. Angstman Co
Lincoln—Mayer Bros. Co
Little Rock—Pfeifer Shoe Co., 302 Main St
Los Angeles—555 New Pantages Bldg
Louisville—Bolton Shoe Co
Lowell—The Bon Marche
Milwaukee—Brauer Shoe Co
Minneapolis—22 Eighth St., South
Mobile—Lowell Bros. Shoe Store
Montgomery—Capitol Shoe Co
Muncie, Ind.—C. W. Mock
Nashville—Meyer's, 211 So. Walnut St
Newark—847 Broad St. (opp. City Hall)
New Britain—Stout Bros.
New Haven—153 Court St. (2d floor)
New York—1 West 34th St.
Norfolk—Ames & Brenner
Oklahoma City—Bon Ton Shop
Omaha—1308 Howard St.
Passaic—Kruse & Lexington Ave
Paterson—Evans & Young
Philadelphia—1300 Walnut St.
Pittsburgh—The Rosenbaum Co
Pittsfield—Daly's, 24 North St.
Portland, Me.—Palmer Shoe Co.
Portland, Ore.—Allen Miller St.
Providence—The Boston Store
Richmond—S. S. Stewart
Roanoke—Virginia Shoe Co.
Rochester—Sibley,
Rockford—148 Main Ave
Rockford—D. E. Sweet & Co.
Saginaw—Gossard Lacher Co
St. Louis—307 Arcade Bldg. (opp. P.O.)
Salt Lake City—Walker Bros. Co.
San Antonio—Commercial Shoe Co
San Diego—The Marston Co
San Francisco—Phelan Bldg. (Arcade)
Santa Barbara—Simon Bootery
[illegible] Co.
[illegible] Peck & Hill
[illegible] Shoe Co
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when it comes to directing anyone, either adult or child, to assume a pleasing posture. This one command it would seem embodies both the physical and mental attitude of good posture—for good physical posture must be accompanied by good mental posture to be effective. This command is simple, straightforward, and direct. Try it yourself and see if it has the desired effect. "Prick your ears up." Simple, forceful, direct and full of suggestion.

Try this on the children; it appeals to them; they appreciate it and respond to it immediately. Their heads, necks, shoulders, chests, abdomens, arms, hands, etc., etc., fall into naturally correct positions for let us repeat again—good posture is a natural physical adjunct, not an assumed position.

"Prick your ears up." That is a command which is full to the brim of wonderful suggestion and possibility. Close your eyes and picture just what it means. Prick your ears up physically and mentally; what more is necessary? Immediately you are in a position of mental and physical expectation ready to hear, to think, and to act; and, after all, good posture is the natural physical and mental attitude of the person who has accomplished things and is poised ready to accomplish many more wonderful things. Let us then go forward this school year with that confident attitude which makes the hard things easy and which assures us of victory. Let us at all times keep our minds and bodies, and those of the children as well, in the right posture —that of eager expectancy typified by the command—"Prick your ears up."

Radiant Energy of the Sun

THE radiant energy supplied by the sun in the form of light and heat is the agent Nature places at the service of animate and inanimate matter for the conservation of its individuality, for its defense, and for the continuation of the species, according to Dr. A. A. Nouel. In some way variously explained but not precisely understood direct sunlight sets in motion a recuperative process which restores the deformed bodies of children who suffer from bone infection, and later observations would seem to show curative properties of sunlight in such diseases of alimentation as rickets. It is known that the infra-red rays have a powerful bactericidal action and, owing to their greater wave length, they give out a considerable amount of heat when they impinge upon the body. On account of their heat the red rays are also active in vaso-dilatation, which favors phagocytosis, and tends to relieve congestion in the internal organs. These facts are often overlooked when attempts are made to find in ultra-violet rays an artificial substitute for sunlight.

In seeking an explanation for the superiority of whole sunlight in this treatment, Rollier says that, in view of the fact that in Nature we so frequently meet with organic substances or living cells which are affected by wave lengths varying between definite and comparatively narrow limits, it seems not improbable that similar conditions apply to the human body, and that certain rays act on one type of cell and quite different ones on another.

The stimulating effects of sunlight treatment are unmistakable. The splendid muscular development usual with heliotherapy, even in patients confined entirely to bed, Dr. Rollier attributes to direct stimulation, probably of an electrical nature, as vascular changes alone would hardly seem a sufficient explanation. Whole sunlight, elevation, and pure atmosphere give the best results, but there is value in light treatment by artificial means. Lamps giving a maximum of ultraviolet rays have been successfully employed and in some hands are quite successful.

Congress to Consider Fess-Capper Amended Bill

The Fess-Capper Physical Education bill as amended will be considered during the regular session of Congress. The bill provides for the extension of financial aid to the states for the purpose of stimulating adequate health training and physical education for all school children.

The money which is appropriated is to be spent for the preparation and training of supervisors and teachers of physical education, including school health supervisors and school nurses, through state normal schools and other institutions equipped for such service.

Ten million dollars is appropriated for the fiscal year ending June 30, 1922, and for each subsequent year an amount sufficient to allot one dollar per child of school age to each state which has accepted the provisions of the act. These appropriations are to be allotted in the proportion which the population of each state between the ages of six and eighteen years, inclusive, bears to the total population of the United States between the same ages.

For the purpose of administering the act, in the Bureau of Education of the Department of the Interior, a Division of Physical Education is established under a director of physical education. The Bureau of Education, the agencies designated by the states and the United States Public Health Service are from time to time to make studies, investigations, and demonstrations relating to the health supervision of children of school age and the sanitation of school buildings, equipment, and grounds.

Wide World Photos.

A hospital has been erected on the former "exercise place" in the Schweder Strasse, Berlin, where the deformed Children of Berlin can be treated for diseased bones and sick bodies. The entire treatment consists of fresh air and plenty of sunlight. Photo shows the girls' section of the hospital taking the sun cure.

Sherman's Polyvalent Vaccines

A more adequate and rapid immunity can be established with polyvalent vaccines than from an infection itself. SHERMAN'S POLYVALENT VACCINES rapidly stimulate the metabolism and defense of the body with a resultant prompt recovery in general acute infections.

Given early, bacterial vaccines almost invariably cut short the common pyogenic infections of the skin, mucosa joints and tissues;

Administered in advanced cases, they usually ameliorate or abbreviate the course of the disease;

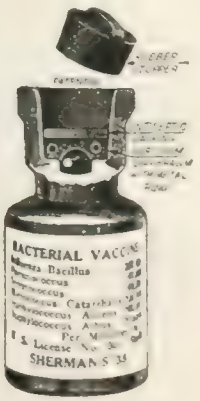
Even when used as a last desperate expedient, they often reverse unfavorable prognosis.

The immunizing powers of stock vaccines are demonstrated by the prophylactic efficiency of typhoid vaccine. Bacterins made from selected, vigorous organisms are far higher immuno-producers than autovaccines prepared from feeble, degenerated organisms sometimes found in the patient's own specimens. Especially in acute cases, the PROMPT injection of a stock bacterin is decidedly preferable to the DELAYED injection of an autogenous one. The place for autovaccines is in chronic infections which fail to clear up under stock bacterins due to the probable presence of some unusual bacterium.

Advanced inflammatory processes due to only one class of bacteria are rare, mixed infections being the rule. Therefore, COMBINED VACCINES, containing all strains likely to be present, give the best assurances of success; an unneeded variety of the bacterin is harmless and in no way weakens therapeutic response.

Thus the favorite invaders of the nose and throat are the pneumococcus, the streptococcus, the staphylococcus and the micrococcus catarrhalis, calling for Sherman's No. 40, and in chronic cases—when there is a foul odor produced by the Friedlander bacillus — Sherman's No. 36. In visceral infections, due chiefly to the colon bacillus with the pus cocci, Sherman's No. 35 is appropriate. In Neisser infections, if these organisms are not already allied with the gonococcus, the imminence of their entrance is so great that the rational combination is Sherman's No 49.

When, particularly in grave cases, valuable time may be lost in securing the variety of vaccine especially recommended, it is always advisable to use the vaccine at hand which contains the predominant organism of the disease to be combatted.



Sherman's 10 Mil Container

This package has many superior features which assure asepsis, prevent leakage and facilitate the removal of contents. It is constructed on the well known Sherman principle.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the asceptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

Twenty Preparations. *Beyond the experimental stage*

BACTERIOLOGICAL LABORATORIES OF G. H. SHERMAN, M. D.

DETROIT, U. S. A.

"DAILY USERS OF VACCINES USE SHERMAN'S"

Physical Education in Colleges*

By GEORGE L. MEYLAN, M.D., Chairman, Columbia University, New York City

YOUR committee, appointed in 1909, takes great pleasure in reporting that the questionnaire sent to the colleges in 1920 was answered more carefully and by a much larger number of colleges than the previous questionnaires sent out in 1909 and 1915.

The data contained in the answers to this questionnaire constitute a fairly complete report of the present status of the organization, equipment, and administration of physical education and athletics in American colleges. This happy result is due to two chief factors. (1) Greatly increased interest and development in college physical education and athletics during the last five years; and, (2) the generous cooperation of the United States Bureau of Education in duplicating, mailing, and collecting the questionnaires.

Your Committee recommends that the complete data be published in tabular form and made available to college presidents, directors of physical education, and others interested in college physical education and athletics. The data collected in 1909 and 1915 have been used with exceedingly good results by college directors of physical education in securing academic recognition and financial support for physical education. . . .

The complete data contained in the 1920 questionnaires have been tabulated and the material is ready for publication. It is not feasible at this time to present more than a résumé of the most important facts as follows:

260 questionnaires were returned.

250 questionnaires were filled out sufficiently to be used in the tabulation.

56 are from institutions for men only.

50 are from institutions for women only.

144 are from co-educational institutions.

Physical Education

(1) Have you a department of physical education?

236 answers. 199 or 84.3 per cent, yes.

(2) Activities administered by department of physical education:

(a) Gymnasium, 200, or 85 per cent.

(b) Instruction in gymnastics and athletics, 203, or 86 per cent.

(c) Coaching and training of varsity teams, 194, or 82.2 per cent.

(d) Business administration of inter-collegiate athletics, 95, or 40 per cent.

(e) Instruction in hygiene, 90, or 38.1 per cent.

(f) Care of students' health, 118, or 50 per cent.

(g) Sanitation of college community, 54, or 23.3 per cent.

(3) Rank of officers in department of physical education:

(a) Professor 157
(b) Assoc. or assist. professor. 93
(a and b equal 56.4 per cent of colleges.)
(c) Physical director 170
(d) Instructor 261
(e) Assistant 208
(f) Clerk 99

Average number on instruction staff, 3.8 per college.

(4) Has head of department a seat in faculty?

213 answered. 187, or 88 per cent, yes.

(5) The following figures were obtained concerning equipment:

209 colleges have 270 gymnasiums.
89 colleges have 243 handball courts.
16 colleges have 39 squash courts.
62 colleges have 103 courts for boxing, fencing, etc.
90 colleges have 101 swimming pools.
205 colleges have 331 baseball fields.
179 colleges have 246 football fields.
100 colleges have 148 fields for other games.
160 colleges have 203 running tracks.
201 colleges have 1,240 tennis courts.
18 colleges have 25 boathouses.
20 colleges have 249 boats.
19 colleges have 26 skating rinks.

(6) The statistics on the number of students enrolled and the annual budgets in the department of physical education follow:

(a) Physical education facilities provided:

86,199 male students provided for by 162 colleges.
49,462 female students provided for by 130 colleges.

(b) Students enrolled in prescribed physical education courses:

43,350 male students in 126 colleges.
31,666 female students in 113 colleges.

(c) Students enrolled in elective physical education courses:

5,913 male students in 60 colleges.
4,074 female students in 42 colleges.

(d) Students participating in intercollegiate athletics:

19,120 male students in 175 colleges.
1,002 female students in 19 colleges.

(e) Students participating in intramural athletics:

37,683 male students in 131 colleges.
30,423 female students in 71 colleges.

(f) Number of physical examinations made:

44,231 examinations of male students by 98 colleges.
26,115 examinations of female students by 84 colleges.

(g) Annual budgets for departments of physical education:

126 colleges expend total of $800,855.
Average amount of budget $6,356.
Largest budget $47,000; smallest $100.

Physical Education Courses

(1) 180 colleges have prescribed courses in physical education.

85 colleges have elective courses in physical education.

(2) The courses are prescribed as follows:

To freshmen at 157 colleges.
To sophomores at 137 colleges.
To juniors at 44 colleges.
To seniors at 29 colleges.

(3) Positive credit is given for physical education courses by 139 colleges.

(4) 134 colleges permit students to substitute training with a varsity or freshman team for the required work in physical education.

Athletic Administration

(1) Two hundred and two colleges report that they participate in intercollegiate athletics.

(2) The administration of varsity teams is by:

(a) The college exclusively in 40 colleges.

(b) The students exclusively in 60 colleges.

(c) The college and students in 108 colleges.

(d) The college, students and alumni in 62 colleges.

(4) The coaches are appointed and paid by:

(a) The college in 159 colleges.

(b) The athletic association in 47 colleges.

(c) The college and the athletic association in 20 colleges.

(7) 188 colleges report that they are in favor of the plan advocated by the National Collegiate Athletic Association to have all intercollegiate athletics controlled by the college authorities.

*Abstract of Report of Committee on Status of Physical Education, Hygiene and Athletics in American Colleges. Printed by courtesy of the American Physical Education Review.

Severe Case of Static Flat Foot

is the cause of inefficiency and much bodily suffering. As a physician you will be interested in learning more about a most successful mode of treatment now used by thousands of successful practitioners in the treatment of weak or flat-foot, Morton's Toe, Metatarsalgia, Hallux Valgus, bunion, painful heel, weak ankles and other conditions where mechanical treatment is indicated.

Dr Scholl's
Corrective Foot Appliances

with proper foot-gear and corrective foot exercises usually bring quick relief to these conditions. There is an appliance especially designed for each condition. They are now placed on sale with leading shoe dealers and surgical instrument houses in every city.

Write us name and address of one nearest you and for the new pamphlet, "Foot Weakness and Correction for the Physician," including a chart of corrective foot exercises as recommended by the Medical Department, U. S. A.

THE SCHOLL MFG. CO., 213 W. Schiller St., Chicago, Ill.

NEW YORK *TORONTO* *LONDON*

Health Work in Many Lands

THE health activities of the Rockefeller Foundation as recounted in their Seventh Annual Report covering the period from January 1, 1920, to December 31, 1920, offer an excellent demonstration of the efficacy of precise method along definitely directed lines. Whether their program aimed at tuberculosis in France, yellow fever in Guatemala, malarial control in Argentina and Nicaragua, or hookworm disease in Papua, the method was the same—a preliminary survey of the local conditions, the collection and dissemination of all the available knowledge of the causes of the prevailing disease, organization of trained men for health administration, and the promotion of cooperative effort between the individual, the community, and such health organizations.

That consistent effort of this kind may be counted on to bear results is sufficiently clear from the tabular summary of results, which show so high a percentage of cures in given campaigns as to appear, on the surface, as an incrimination of health agencies which usually register a lower record.

There is much to be said in this connection, however. Knowledge of the causes of disease is one thing, and its application to control the spread of maladies is another. The Foundation has stated that even at best the public authorities can control wholly or in part only about 20 per cent of the diseases by which people are crippled or killed. Typhus, scarlet fever, smallpox, and malaria can be either prevented or kept from spreading; but tuberculosis, measles, diphtheria, pneumonia, and influenza cannot be placed in the same category as their control must remain more the initiative of the community and the individual than of organized health activity, which is one way of saying that the community controls its own death rate.

The Toll of Yellow Fever

Certain disorders that take a heavy toll and that ignore all political boundary lines have been the especial concern of the International Health Board. The fight against yellow fever, for instance, was carried on during 1920 in all infected areas: on the east coast of Brazil; in Ecuador and Peru; in Guatemala, Honduras, Nicaragua, and Salvador; in Mexico; and in West Africa. The studies in Africa aim (1) to determine whether the reported yellow fever in that region is yellow fever; and (2) to ascertain, if the presence of yellow fever should be confirmed, whether control measures are feasible.

As a result of the laboratory studies of Noguchi, a therapeutic serum is available for the treatment of yellow fever which, given in the early days of the disease, has seemed to reduce the usual mortality of 50 to 60 per cent to 9 per cent, supplementing a thorough-going mosquito control.

Based upon the successful results attendant upon earlier field experiments, demonstrations were carried

Worms recovered from nine-year-old boy as result of one treatment with oil of chenopodium. Eighty-nine hookworms and eighty-one Ascaris. This demonstration induced many in Brazil to apply for treatment.

out in fifty-two towns in southern states to prove that even in towns of 1,000 to 1,500 inhabitants under average conditions, malaria can be controlled within limits of cost which such communities may well afford. At an average per capita cost of seventy-eight cents per annum—an amount much less than the cost of malaria in doctors' bills alone. A statistical measurement of the results from malaria control are difficult to obtain, but the best estimate available would seem to indicate that malaria incidence has been lowered from 40 per cent in 1917 to 18 per cent in 1920.

Hookworm Control

Hookworm disease affects fundamentally the welfare of mankind over

A group of village headmen assembled to hear a lecture on hookworm disease

A remarkably efficacious remedy in furunculosis

The curative effects of yeast described by physicians and physiological chemists

The successful use of yeast in certain maladies has been demonstrated by careful tests. In leading institutions in New York and Philadelphia the yeast treatment was given in 17 cases of furunculosis.

The tests were carried on under the direction of Philip B. Hawk, Ph.D., by Frank Crozer Knowles, M. D., Martin E. Rehfuss, M. D., and James A. Clarke, M. D., with the collaboration of Olaf Bergeim, Ph.D., H. Rodell Fishback, M. D., Sc.D., Clarence A. Smith, Ph.D., and Robert A. Lichtenthaeler, M. S.

The cases covered such conditions as single large boil; boils a week apart for two months; and periodic boils for years. One patient had several large boils which did not yield to vaccine. After three cakes of yeast daily for two weeks the boils disappeared. A boil started on the leg after yeast was stopped. The yeast treatment was resumed. The boil soon cured.

Fleischman's Yeast was used throughout the investigation—as being not only the most readily available, but also because it gave assurance of absolute uniformity and purity.

The conclusion of Dr. Philip B. Hawk and his associates is: "In furunculosis, yeast is a remarkably efficacious remedy. Its curative action in these cases is no doubt aided by the leukocytosis which is developed."

The usual dosage in these cases was three cakes a day—suspended in water, beef-tea, or orange juice — generally before meals. In some cases, because of the laxative action of the yeast, it was necessary to reduce the dosage.

With patients troubled with gas formation, it was found preferable either to administer yeast between meals, or else to "kill" the yeast by placing it in boiling water for a few minutes. The action of the "killed" yeast proved to be much the same as that of the living yeast.

A full report of this test can be found in the Journal of the A. M. A. for October 13, 1917, under the title: "The Use of Baker's Yeast in Diseases of the Skin and of the Gastro-Intestinal Tract."

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vast regions. The development of permanent agencies for its control were undertaken during 1920 in nine southern states and in twenty-five foreign states and countries. The appendix of the report gives graphs and tables showing the extent and severity of hookworm disease, the working plans for its control, and the progress made toward organizing effective permanent agencies which would operate in this field over long periods of times.

The importance of this work in the South is stimulating county health work. Hookworm disease is not eradicated but effective machinery for its control is in operation, and the lessons driven home by this campaign in the interests of preventive medicine has reflected in lowered death rates from other causes, in North Carolina a reduction has been registered in the typhoid death rate alone from 29.6 to 16.9 per 100,000.

No better evidence is offered anywhere of the present trend in medicine to shift from official action to popular education, that is, from cure to prevention. The best safeguards of health are found through team work between scientific research and popular effort, guided by the socially minded physician. Popular sentiment for public health must be stimulated.

Experiments in Ventilation

THE Pittsburgh Experiment Station of the United States Bureau of Mines is working in cooperation with the Research Bureau of the American Society of Heating and Ventilating Engineers on a number of important problems which affect each individual in his home life, in his place of business, and especially in those places where many people congregate, as in churches, schoolrooms, and theaters. It is important to ventilate such places with sufficient fresh air to make everyone comfortable enough to be able to work at high efficiency. The circulation of excessive quantities of fresh air imposes a considerable cost on the heating system, therefore an efficiently designed heating and ventilating system introduces the least amount of cooled air consistent with proper conditions for health. In this connection the use of ozone has frequently been proposed and actually tried in a number of places. The ozone is supposed to deodorize and purify the air by the oxidation of organic matter and possibly by killing bacteria.

It is, however, a real question as to whether ozone can be introduced in quantities large enough to kill bacteria without producing very serious irritation of the throat and lung tissues. It is also a question as to whether harmful oxides of nitrogen are not produced simultaneously with ozone. Definite information is needed on this subject. The first step in obtaining such information is to work out methods for accurately determining the percentage of ozone and oxids of nitrogen produced for different types of ozone machines and to develop suitable methods for determining the very small quantities of ozone and oxids of nitrogen that may be present in air treated with such machines. Analytical work of the highest precision is required. The gas laboratory of the Bureau of Mines, Pittsburgh Experiment Station, is now engaged on this problem, working in cooperation with the Research Bureau of the American Society of Heating and Ventilating Engineers which is housed in the same building.

After the chemists have worked out the methods of detecting and analyzing these small quantities of ozone and oxids of nitrogen, the next problem will be undertaken in a like cooperation of the two agencies just named working with the United States Public Health Service. Surgeons from this service are detailed to the Bureau of Mines for working on health and sanitation problems. Many facts belonging to industrial hygiene will be brought out in the study. The work is being carried on under the joint general direction of A. C. Fieldner, supervising chemist and superintendent of the Pittsburgh Station of the Bureau of Mines, and Dr. R. R. Sayers, chief surgeon, Bureau of Mines, by G. W. Jones, assistant gas chemist, Bureau of Mines; W. P. Yant, assistant analytical chemist, Bureau of Mines; and O. W. Armspach, engineer, American Society of Heating and Ventilating Engineers.

The Subjective Element in Fatigue

In estimating strains and tax upon nervous energy and vitality, there are, in addition to concentrated attention and intensity of effort, four factors which contribute in no uncertain measure. They are speed, noise, complexity, and monotony. Pressure of any kind, not included within this group, should be added as a fifth. The consciousness of ever present supervision may produce a nervous strain upon sensitive workers greater than that of the speeding up of machinery, the incessant din of hammers, or complications of intricate industrial operations. To a pressure of employment at one time and uncertainty of employment at another there must be added, in the case of many a wage earner, ever present trying circumstances and responsibilities. Thus far in industrial regulation, the cumulative effects of subjective influences and of combined physical and mental strain have been all but wholly ignored. They are the very essence of the forces which are helping to undermine, not alone the health of hundreds of thousands of individuals, but also the vitality of coming generations.—W. L. Mackenzie King.

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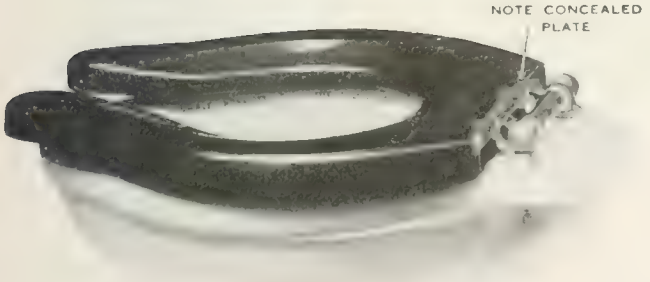

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Curative Fresh Air for School Children

At first restricted to the definitely tuberculous child, fresh-air therapy is now being applied through fresh-air camp schools to the weak and undernourished with gratifying results. Its curative effect has been demonstrated in cases of anemia, malnutrition, rickets, general deficient development, and convalescence after acute general fevers.

The converse development of the fresh air school from elaborate and expensive residential establishments far from the child's locality to sheds with roofs and no walls located near the industrial centers is shown by Lina M. Potter in a recent issue of the *International Journal of Public Health*.

Fresh air classes first developed in England when classes were started in hospitals for sick children. Philanthropic societies saw the need of the weak school child for more air and by summer outings attempted to compensate him for his lack of fresh air during the school year. In the last few years these various attempts to ameliorate the conditions of the weakly and sick school child have been coordinated.

Government fresh-air schools have been provided in crowded and industrial districts. The types of child eligible for treatment are the early pulmonary tuberculous, the chronically tuberculous who do not need active treatment and who have no postural requirements inconsistent with the simple school equipment, and in addition, debilitated, weakly, and ill nourished children.

There is still a great dearth of open air schools in England. According to an estimate of the London County Council for 1920, two thousand places are needed in fresh air schools for non-tuberculous children; 410 places are already provided with a proposed accommodation of 600, leaving 990 children unprovided for.

Even in London, the climate of which is notoriously uncertain, the doctors reported a "remarkable absence of catarrhal conditions in the children educated in the open air compared with those remaining in the school buildings."

Paris opened its first open air school at Chartres in 1918, its original purpose being to get children away from the war influence. Another school was founded later near Sceaux.

Fresh air therapy as applied to the school child is inexpensive and widely applicable to all districts, is Miss Potter's conclusion.

Providence, R. I., claims the distinction of having the first open air school in the United States. Fresh air schools were soon established in New York City, Boston, Pittsburgh and Cambridge, Massachusetts. Chicago's first outdoor school for tuberculous children was started in 1909 through the joint cooperation of the board of education and the Chicago Tuberculosis Institute. So successful was the experiment that the principal of the school conducted on the roof of the Mary Crane Nursery extended the open air project to his own building, leaving the windows of two rooms open. The children were allowed to keep their wraps on, temperature was maintained at 45 or 50 degrees Fahrenheit, and the children were given more physical activity. Of the 90 pupils in the two rooms only two had nasal discharges at the end of an eight week's period while in the other two rooms heated and ventilated in the usual way 40 pupils had nasal discharges at the end of the same period.

Harvard Scientists to Peru

GREAT interest attaches to the recent expedition that went out from New York to undertake at Cerro de Pasco, Peru, a point in the Andes at a height of more than fourteen thousand feet, the first studies ever made to determine the physiological changes which enable people to live permanently in high altitudes. Their observations will include the changes in the heart, circulation, respiration, and the chemical composition of the blood which enable the natives to live in comfort and do arduous work in the copper mines at an altitude in which persons not so adapted would be incapacitated from most activities of the sort on account of the rarity of the air. The town is one of the loftiest places on the globe where any considerable number of people live.

It is believed that the facts to be secured about the way in which the body adapts itself to a reduced supply of oxygen will prove useful in the treatment of certain diseases of the heart and lungs in which strikingly similar conditions occur. The problem is also of interest to aviators, who frequently suffer from the effects of flying at high altitudes. Fatigue is the true source of physiological troubles from rarefaction of the atmosphere. Breathlessness is produced with much less mechanical work than is possible at lower levels. Amar reports that in the Caylloma mines, South Peru, at 4,500 to 4,900 meters above sea level, the work of smiths, carpenters, wood workers, and mechanics is lowered by half. Cold, fatigue, lack of oxygenation of the blood and, perhaps, the fear of danger, produce altitude sickness.

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Five Harvard men (left to right) Doctors Henry S. Forbes, C. A. L. Binger, Alfred C. Redfield, Arlie V. Bock, and George Harrop, together with three medical investigators from England, left in November for Peru to carry on studies relating to the physiological effects of high altitudes.

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Homes Cause Ill Health

HOME conditions rather than long hours or overwork are charged with much of the poor health, so prevalent among the industrially employed girls today, said Dr. Kristine Mann, recently, head of the Health Center for Women at 5 Livingston Place, New York. On the basis of an examination recently completed of more than 1,000 women and girls engaged in gainful occupations in factories and business houses, Doctor Mann points out that industrial conditions are not the only factors in the rapid deterioration of health among the girls. Unhappy home conditions and maladjustments to life generally rank as important handicaps, she said.

"Many of our so-called working girls suffer acutely from unhappiness and friction in their family lives," Doctor Mann said in a talk at the Health Center, where she is daily and nightly helping girls and women back to better health.

"A girl's health depends very greatly on her mental attitude; if she is suffering from mental strain, there is bound to be a marked reaction in her physical condition.

"The physical condition of the average woman in industry is decidedly bad," she continued, "the worst feature being her marked tendency to develop physical ills and weaknesses from the time she enters employment, largely due to the expenditure of her free hours and lack of exercise. The average employed woman at thirty has developed flabby muscles, tired back and eye-strain that were unknown to her when she took her initial step into employment. The average stenographer at twenty-five, our records show, does not begin to have the strength that was hers at twenty. Yet nature intended that her muscles should show the five additional years of development and strength.

"Of the thousand women from different types of work whom I examined, only 15 per cent had what might be called good posture. Fifty-three per cent suffered from various forms of indigestion. Fifty-five per cent complained of periodic headaches, many due to the need of glasses. Undoubtedly, long hours and over-pressure on the worker have done much to bring about this condition, but the fact that most of these girls spend their entire lives in cities, haunting the movie palaces at night, consuming ice-cream sodas and cheap candy, instead of indulging in strength-building exercises which can do much to relieve that tired, cramped feeling that is bound to exist at the end of a long day spent over a machine or behind a department store counter, must not be overlooked."

Child-Placing Agency Standards

WITH the realization that institutional care for children does not sufficiently approximate the home conditions that augur best for the child's health and mental development, investigations have been conducted in various communities revealing conditions that, with the lack of regulatory standards and with insufficient supervision, have become intolerable. Notable success has attended clean-up measures in Kansas, and recent reports from Toronto confirm in the most indisputable terms the advantages of regulated placement over the segregation of great numbers of children in institutions.

California has outlined in the following standards, revised in March, 1921, for child caring agencies which constitute the rulings of the State Board of Charities and Corrections:

(1) *Organization.* — Each society should be incorporated; it should have a board of directors made up of persons generally recognized as responsible citizens, persons willing to do active work for the society and representing the several religious faiths of the children in ward; and each society should have a committee which should direct the policies concerning the placement of children. There must be a superintendent who must not collect his own salary, but devote all his time to the organization and conduct of the work.

(2) *Receiving Home.*—If the society maintains a receiving home for its ward, this home, if of institutional type, shall conform to the standards adopted by the State Board of Charities and Corrections for children's institutions. If children are placed in boarding homes pending permanent placement, these homes must conform to the standards set by this Board for family boarding homes.

(3) *Foster Homes.*—In general, the foster homes in which children are placed by boarding-out agencies shall conform to the standards established by the State Board of Charities and Corrections for family boarding homes.

(4) *Physical Examination.*—A thorough physical examination shall be made of each child within a week's time of its reception by the child-placing agency, with prompt correction of remediable defects.

(5) *Mental Examination.*—A mental test should be made in all cases. It must be made in all doubtful cases.

(6) *Supervision.*—Each society shall maintain an adequate supervision of the children placed by it. It should aim to visit each child once a month.

(7) *Records.*—Each society should keep an accurate record for each child in its care, covering complete family history, physical and mental condition, and school progress.

(8) *Reports.*—Each society shall render an annual financial and social report on forms prescribed by the State Board of Charities and Corrections.

Each society shall furnish to the State Board of Charities and Corrections monthly reports of placements made and foster homes used and discontinued. A report shall be made also of each ward of the society not visited within the month.

(9) *Adoption.*—No agency should consent to the adoption of any of its wards until the child has been in one home under the supervision of the agency for at least six months.

Attention is called to the provisions of Section 224 of the Civil Code relating to persons whose consent is necessary to the adoption of a minor child and requiring that when a child has been relinquished by its parents for the purpose of adoption, a copy of the relinquishment must be filed with the State Board of Charities and Corrections prior to the commencement of adoption proceedings.

Boarding Houses

(1) *Definition.*—A family boarding home for children is a private family home which accepts one or more children to board.

(2) *Number of Children.*—(a) Since the family boarding home is primarily a home, the number of children in it shall not exceed that number which it is customary to think of as constituting a normal family group. The number of boarded children should not exceed six.

(b) Unless especially equipped for the care of infants alone, not more

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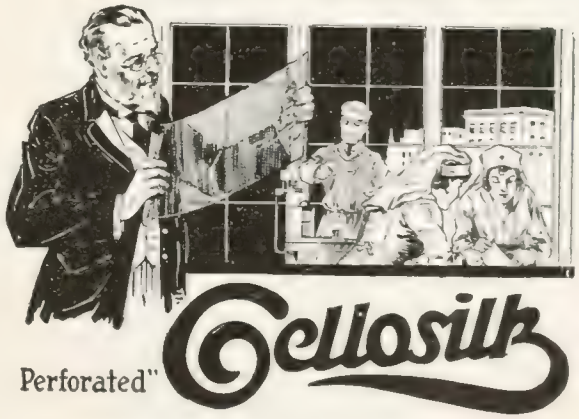

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than two infants shall be allowed in any family boarding home.

(3) *References.*—Satisfactory references must be furnished.

(4) *Register.*—A register shall be kept in which shall be recorded the name, age, sex of the child, the names and addresses of parents or guardians, religion, date of reception, date of discharge of each child; also a health record showing condition of the child on entrance to home and any subsequent illness or accident. Such a register has been prescribed and printed by the State Board of Charities and Corrections and is supplied free of charge. This register must at all times be open to the inspector from the State Board of Charities and Corrections.

(5) *Housing.*—(a) The home shall conform in building and maintenance to the sanitary ordinances of the city or county, and shall have the permit or endorsement of the local board of health or health officer.

(b) The house must be in a resident district (not commercial or factory), convenient to school, with sufficient room to accommodate the family group and the boarded children in a comfortable and sanitary way, and with yard space large enough for a home playground for the children.

(c) Sleeping rooms must afford at least four hundred cubic feet of space for each occupant, and must have plenty of windows opening upon street or yard—no dark courts.

(6) *Care of Children.*—(a) The dietary shall be up to the standard approved by the State Board of Charities and Corrections and should include at least one pint of milk daily for each child. Formulae for feeding infants should be prescribed by a registered physician.

(b) Each child shall have a separate bed. Each bed shall have a good spring, clean, comfortable mattress, adequate bedding, and rubber sheeting for infants and bed-wetters.

(c) Proper medical supervision shall be guaranteed each child.

(d) Individual hair and tooth brushes, towel, etc., should be provided and each child instructed in their use.

(e) Every child of proper age shall be given opportunity to attend Sabbath school or church of the religious faith of its parents.

(f) Children under fourteen years shall have no routine work other than school tasks, but there is no objection to their performing simple duties, providing these do not interfere with ample opportunity for school and play.

(g) During the absence of the foster mother, children must be left in charge of a competent person.

(7) *Income.*—The sum paid for the support of the children shall not be the only source of income for the family group; there must be some other resource.

(8) *Adult Boarders.*—No adult male boarders or roomers shall be permitted.

(9) *Removal of Children.*—When a child is given up, it must be to the parent, guardian, or other person having a legal right to receive it.

(10) *Reports.*—(a) The death or serious illness of any child must be reported promptly to the State Board of Charities and Corrections.

(b) Any change in the management or address of the foster home must be reported to the State Board of Charities and Corrections.

(c) Failure to make these reports may constitute cause for revocation of license.

Ohio State Institutions

The report on state institutions prepared by the Ohio Board of Administration for the past year points out various needs and requirements. New housing facilities for the insane, epileptic, feebleminded, penitentiary and reformatory institutes are imperative. In one institution 240 inmates are sleeping on the floor. It is suggested that these buildings be simple, attractive and sanitary—not the massive monumental type heretofore to such an extent used.

Although millions of dollars are annually spent for the care of an ever-increasing number of insane, feebleminded, epileptic and criminal persons, only a few thousand dollars have been spent for the study of the nature and cause of these conditions and the proper treatment for these persons. Through the Bureau of Juvenile Research complete mental and physical examination should be made of all juvenile offenders committed to a state institution, appearing before the juvenile court or those school children three or more years retarded and not making satisfactory adjustment to the school environment. Ultimately adult offenders committed to state institutions or those appearing before criminal courts, where mental deficiency is suspected, should be examined. Certainly the greatest success in probation and parole work is not possible until the fundamental aspects and factors of each individual case are known and the decision as to the time and conditions of probation and parole made with reference to these facts.

The state insane hospitals are not abreast with the times. The medical work is entirely inadequate and the research and investigation neglected. Real preventive work has not been started. The prompt recognition and correction of medical and surgical diseases, co-existent with disordered mental states, would undoubtedly entirely clear up many early cases and improve others sufficiently to permit their early discharge from the institutions.

This preventive work can be done by the establishment of mental clinics where persons in the early stages of insanity can receive advice and treatment, by the employment of field workers to discover incipient cases, to supervise discharged patients, and by other methods.

Chronic insane patients who are in good physical condition and who require long continued care should be segregated and housed in suitable buildings and be employed in farming, dairying, and gardening work. This would permit the concentration of medical and nursing efforts on curable cases, and would mark definite improvement over the present system.

Each hospital should have a consulting staff of leading specialists. Every patient who enters a hospital should be given a thorough mental and medical examination and all defects or disorders should be promptly corrected and treated. The Cleveland hospital, it is suggested, could be used as a reception hospital, acute medical and surgical hospital, diagnostic clinic, laboratories and an infirmary for terminal cases. It would be the clearing house for insane patients from that section of the state.

The Board estimates that there are 21,000 feeble-minded persons in the state of which number 10,000 need institutional care. The state has provision, however, for 3,000. Those who are physically able should be employed at some productive work. Prisoners, for instance, should be used on public work. The argument that the employment of three or four thousand persons in various occupations in the penal institutions would have any appreciable effect on the stability of any industry in the state seems absurd.

It is recommended that three commissions to study and report on the special problems of public welfare be appointed to study penal institutions, the problem of the blind, and to consider the purchase of Longview Hospital.

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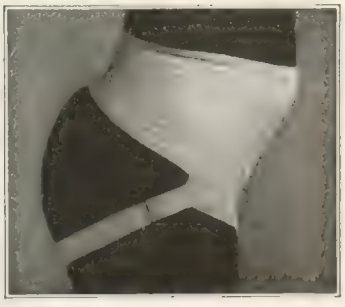

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Child Labor and Mental Hygiene

THE popular conception of child labor is limited very largely to its physical and physiological aspects. Due emphasis has not been made on the psychical side of the child labor experience. Deformation of the person is not more terrible than deformation of the personality, and the life of the body is not to be more esteemed than the life of the mind, as is pointed out by Raymond G. Fuller in the *American Child* of May, 1921. The child has a mind, a nervous system, a body physically immature, susceptible, and plastic.

The nervous disorders and derangements in which child labor may be a contributing factor range from slight abnormalities to functional diseases, in which the power of sight, or the use of the arms or legs have been lost. Chorea *dementia praecox* have their roots in the functional disorders of childhood and youth. Most of the childhood laborers are in the period of early adolescence when neurotic disturbances are peculiarly liable to appear and become deep seated. The time of prevention is childhood, and little consideration is given to the tragedy and cause of preventable nervous diseases.

Play as a spontaneous and self-expressing activity, is always according to nature. It conforms at every moment of the child's life to the genetics of his growth and development. It reflects the various instinctive tendencies, helping to ripen and strengthen it. In short it obeys the self-finding and self-developing push within the child. On the negative side it respects the limitations of the child as regards these neuromuscular coordinations and psychic motives.

Child labor in many of its forms constitutes a repressive environment. It is no respecter of instinctive needs and may lead directly to nervous disturbance and disorders as well as indirectly through the fatigue it occasions. Queer complexes are built up, manifesting themselves in queer behavior.

The psychical side of the child labor evil may be stated in terms of suggestibility. In child labor there is a combination of two factors, suggestibility and fatigue. These may become psychopathic, with consequences serious in their extent. It is incontrovertible that there would be less mental ill health and inefficiency in adults today if there had been less child labor and more childhood play.

The enormous child labor turnover is self-explanatory. The instincts, interests and desires, such as those of initiative, constructiveness, curiosity, thwarted it may have been in school, are likely to be thwarted again in child labor. There is disappointment and disillusion, with usually no counsel to mitigate the shock or help the child to adjust himself to the new conditions. One job after another is tried in the search for satisfaction and self expression. There is intermittent work and idleness with little gained in the way of vocational training or of helpful discipline. Habits of vaccilation, of change, and of failure are formed, leaving their mark in weakened will and character.

As the author points out, not the cities, nor the city streets, nor yet the factories are the true homes of childhood, but rather the fields and forests, the rivers and hills and the shores of the sea. The city is a false environment, with its manifold noises, its rhythms false to nature. So far as possible they must live the simple life and the life of play. The stress and strain of urban life must be mitigated, but even in country places, in the great outdoors children are growing up in conditions not in keeping with their needs and the demands of their natures. Play is a safety valve for overflowing energy and spirits and motor expression through play of the highest educational value. He thus discovers himself slowly, achieves command of his powers, and makes full use of his opportunities.

What Health Service Costs

A study of the cost of health service in industry made by the National Industrial Conference Board, shows that the average for the industries reporting is $4.43 per employee per year, says the *Monthly Labor Review*. The lowest cost reported was $1.84 per employee per year in the tobacco industry, and the highest was $24.40 in the mining industry.

The information was gathered by means of questionnaires submitted to manufacturing plants in representative industrial communities throughout the country. Of the replies received 207 contained complete information that could be used in the analysis. One hundred four of the replies were based on the records of 1919, 99 on records of 1920, and 4 on records of 1918. In the plants reporting, 764,827 workers were employed, of whom 631,582 were males, and 133,254 were females. The number of workers per plant varied from 129 to 33,960.

The information received discloses that the earliest recorded effort on the part of the management to conserve workers' health was made in 1879. Only 9 of the firms reporting had health supervision previous to 1900, while 164, or 86.7 per cent, established health service in 1910 or later. The largest number introduced it in 1916, and the next largest in 1919. The following table, prepared by the National Industrial Conference Board, shows at a glance the cost of industrial medical departments for the various industries reporting.

Industry	No. Plants Reporting	Number of Workers			Total Cost	Cost per Person
		Male	Female	Total		
Abrasive	5	7,613	612	8,225	$ 64,810	$ 7.88
Automobile	5	30,128	2,084	32,212	180,215	5.60
Boot and Shoe	5	8,761	6,428	15,189	117,644	7.75
Chemicals and Explosives	10	17,313	3,767	21,080	134,494	6.38
Clothing	2	119	503	622	2,918	4.70
Electrical Apparatus	16	80,298	20,974	101,272	319,531	3.15
Food and Food Products	6	27,644	3,845	31,189	131,783	4.18
Foundry Products	3	4,034	130	4,164	34,958	8.40
Hat Manufacturing and Fur Dyeing	3	4,203	1,649	5,852	19,764	3.38
Iron and Steel	14	99,711	5,748	105,459	433,263	4.10
Leather Tanning and Finishing	6	7,677	1,157	8,834	31,305	3.54
Metal Manufacturing	62	180,239	27,661	207,900	780,442	3.75
Mining	4	8,518	82	8,600	209,873	24.40
Paper and Pulp	7	6,166	2,169	8,335	33,873	4.06
Printing and Publishing	4	4,687	2,265	6,952	23,990	3.45
Public Utilities	5	13,511	2,356	15,867	81,658	5.15
Rubber Manufacturing	9	33,547	7,141	40,688	220,273	5.41
Shipbuilding	3	37,500	650	38,150	183,023	4.80
Smelting and Refining	6	10,261	89	10,350	87,932	8.41
Soap	2	3,150	650	3,800	12,466	3.28
Textiles	18	29,457	25,591	55,048	197,792	3.59
Tobacco Manufacturers	2	7,948	5,632	13,580	25,040	1.84
Woodworking	2	625	129	754	2,593	3.44
Miscellaneous	8	8,472	11,933	20,405	57,396	2.81
Totals	207	631,582	133,245	764,827	$3,387,036	*$4.43

*Average.

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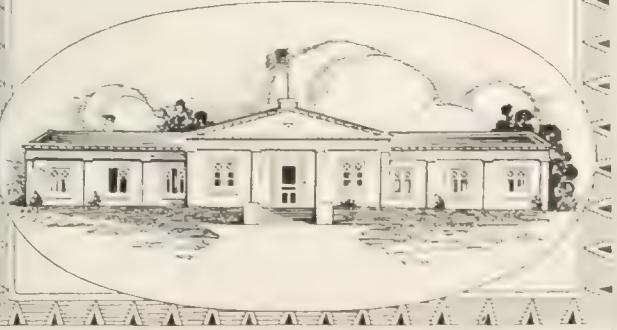

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Plant Disability Funds

THE most recent report by the New York State Industrial Commission is a bulletin on Plant Disability Funds, April, 1921. Forty-one funds were analyzed in response to various requests for information regarding the installation of Disability Funds. The study was confined to funds either jointly supported by management and employees or supported solely by employees. No plants were neglected which supported or administered solely by the management. The funds were taken from thirty-four different industries and approximately 228,000 employees were represented.

The report discusses the type of funds, the maintainance and administration of the funds, the qualifications for membership, the medical service, the waiting period, benefits and costs.

The report, while superficial, will prove suggestive to employers and organizations contemplating the establishment of Disability Funds. Six processes for the administration of such funds, and suggested as having been borne out by experience shown in this investigation.

(1) The plan should be sold to management and men alike. The underlying purpose should permeate the organization from the top down and the bottom up. Superimposed plans are doomed to failure.

(2) The plan should be democratic. As far as possible, the employees should have the fullest possible participation in the organization. However, the presence of management in the form of a company secretary or treasurer is often indispensable and promotes greater efficiency. Joint boards of directors with round-table discussions are generally successful.

(3) Jointly supported funds are found more universally practical than organizations run entirely by management or men. A far larger proportion of employees join such funds rather than associations run entirely by employees. The employee feels he has a real share in an organization whose interests will be efficiently guarded, and at the same time feels no restraint in using the accrued benefits, as he does in a paternalistic or "hand down" fund, run entirely by management.

(4) Certain restrictions on membership maintain organizations up to high standards. Proper physical examinations keep funds free from malingerers. Age provisions should seek to place the burden of risk upon the whole, and not simply the responsibility of the aged upon the young. A short probationary period of membership gives an increased value of the benefit to the members, and helps eliminate floaters. Without at least these provisions, employees have little interest in such organizations.

(5) Adequate medical service should be provided. A plant disability fund should aim not only at relief, but at safeguarding the health of the employees. There should be an earnest attempt to reduce the frequency of and severity of sickness by good medical advice and periodic examination given in the spirit of helpfulness. Few funds give adequate medical care to the disabled. In many funds, the employee chooses and pays for his own doctor. While such a plan eliminates paternalism, in many cases it results in the employee failing to have proper medical attention in time of real need. Many associations, conducted under jointly supported plans, elect their own doctors. Such a scheme would seem democratic, yet fairly efficient.

(6) Dues rates should be related to prevailing wage rates so that membership may be within reach of all classes of employees. Benefit rates should render adequate compensation; they should be neither too low nor too high so as to cause prohibition of the use of benefits on the one hand or malingering on the other; they should seek to satisfy the greater need as the length of sickness increases. Faithful employees, upon death after a long term of service, would seem worthy of more than a small funeral benefit.

Modern Beds Unhealthful, Says London Doctor

That the sort of bed one sleeps in has a profound influence on health and posture is pointed out by the medical correspondent of the *London Times*. Although a man spends one third of his life in bed, he takes his sleeping accommodations as a matter of course. The importance of a comfortable bed cannot be over-emphasized since it is the great place of human recuperation. There the cells of the brain are recharged; the elimination of poison and upbuilding of worn-out tissue are carried on.

The modern bed consisting of a wire mattress on which a hair mattress is superimposed does not admit of true relaxation. Such a bed does not shape itself about the body, and with the sinking of the wire mattress, the sleeper is forced to suffer double discomfort, he sinks down in the bed and his back is twisted.

Persons in good health do not notice the discomfort of their beds until sleeplessness or illness overtake them. The middle-aged man who is at the height of his working life always pays the heaviest penalty. The modern bed does not allow his muscles to relax. His rigidity keeps him awake and he becomes a victim of insomnia.

Water beds, pneumatic beds, and rubber beds are recommended as healthful and comfortable. Such a bed would mold itself to the sleeper's form and the backbone would be maintained straight.

The proper ventilation of the bedroom is also urged by the physician. In summertime it is as necessary to comfort to keep the bedroom cooled by an electric fan as it is to have the room not too chilled in winter. The practice of opening wide the windows and then piling on huge piles of heavy blankets is enervating and exhausting to the sleeper.

The question of high or low pillows is one of individual preference, the doctor states, though one too soft is to be avoided as well as the round bolster. Pillows now used are likewise uncomfortable and need improvement.

Belgium Draws Up Physical Education Platform

A special government commission in Belgium recommends the following physical education reforms:

Compulsory physical training for boys and girls in all elementary and high schools, including industrial and special schools; continuance of physical training up to the age of 18, by children who have been permitted to leave school; a permanent government council on physical education and a bureau for the administration of the law bearing on the subject.

Negro Infant Mortality Rate Lowered in New York

The infant mortality rate among the colored population of New York City is almost twice that among the whites. As a result of the intensive campaign carried on since 1915, the rates have been lowered from 96.2 for the white infants and 202 for the colored, to 83 for the white and 164 for the colored. The white rate was reduced 13 per cent and the colored 18 per cent. The reduction of the rate among the Negro population is not only a tribute to the efforts of the Bureau of Child Hygiene and the various child caring organizations operating in the districts concerned, but it is also a sign of an awakening on the part of the colored population to the importance of life-saving measures among its children, and a more ready response to the educational propaganada put forth in their behalf.

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Readings in Evolution, Genetics and Eugenics

The University of Chicago has brought out in Horatio Hackett Newman's book under the above title another volume of inestimable value to the man who needs must keep abreast of progress and yet whose time does not permit unlimited research into the literature of science, or whose earlier training has lacked authoritative direction. Newman has presented the various phases of evolutionary biology in their ordered sequence. The rise of the concept, the evidence, the causo-mechanical theories of evolution, the problems of genetics and eugenics as applied to human improvement—all are adequately and interestingly handled. In a masterly manner coherence is given by the author to the panoramic view of human life as unrolled by successive workers. The choicest of paragraphs from classical evolutionary and modern writers have been chosen to tell the biologic story.

The chapters concerned with the mechanism of heredity are non-technical and are particularly clear in their bearing on applied genetics. Would-be improvers of types and indeed the people generally would do well to con them carefully in the interest of achieving a rational attitude toward the business of living and in evaluating the measures man proposes to substitute for processes of natural selection.

The conservation of the highest human characteristics considers, along with the biologic necessity of being well born, the utmost of educational endeavor and environmental influence to foster favorable heritage. An educated sentiment in racial matters is a fundamental necessity since in the popular mind actual knowledge is so generally confused with a mass of tradition and opinion. Society must learn to protect itself against repetitions of hereditary blunders. Predictability of human types is not to be looked for. Says Saleeby: "We could not undertake to produce a Shakespeare, but we might reasonably hope to produce a generation which would not destroy its Shakespeares."

A rational consideration of racial attitudes toward racial problems but serves to emphasize the unintelligence with which they are countered. The struggle toward racial perfection lies in the way of eugenics, that is, the wastage of children is to be avoided by the elevation of parenthood; unemployment is countered by limiting the propagation of those types whom unfavorable inheritance marks from the first as fundamentally incompetent and unemployable. Especially should we assess highly and foster the types who evince mental energy or that capacity for labor which is so closely allied to mental achievement. "The land is overstocked," Galton is quoted as saying, "with the listless and incapable. In any scheme of eugenics energy is the most important quality to favor; it is the basis of living action, and is eminently transmissible by descent." Eugenics can reasonably promise, when its principles are recognized, to multiply the human and diminish the vegetable types in the community.

University of Chicago Press, 1921.

The Problems of Industrial Government

The problems of industry both from an economic and political point of view have occupied much attention and comment. The publication of "Industrial government" by John R. Commons and others it is to be hoped may clarify some of the current ideas and organize some of the enterprising practices developing. The present book is a study of some thirty establishments visited during 1919 and whose experience extended beyond the immediate period of the war distinguished perhaps by a system of organization or by a dominating personality which evolved its own system. New and temporary experiments are not included.

The plants whose work is outlined, are for the most part entirely familiar to even the casual student of governmental or industry. Ford, Filene, Link-Belt, Joseph & Feiss, Dennison, and others are presented for scrutiny. New anecdotes are told, figures quoted, motives analyzed. Faith in profits, in management, in workers, hope for the future, the groping for justice, for regular employment and profit sharing, the regard or disregard for association or unionism, the striving for efficiency, the struggle for life, all find a place in the tilt. Different men with different ideas and hopes trot out their cures but the last word can scarcely be said yet. Inferences but not conclusions are drawn. There are similarities and differences in each system but it would seem that the seeds future correlation might be available.

The possession of a power to bargain is of course the *sine qua non* in the development of industrial law. The use and abuse of this power is a very fascinating thing, sometimes hopeful, sometimes not so much so. As in the Hart, Schaffner & Marx arrangement, the workers are assured of equal power with the management, their representatives are responsible, their judges are impartial as judges can be.

In the inferences drawn by the authors various phases or needs are emphasized as of importance; security of job, management (including human relationships and contacts as well as a new leadership of active managerial vision and capacity); the representation of employees and joint contract. These are admittedly factors of fundamental importance. These same struggles and ideas have occupied the attention of men in the Church, in politics, and in industry. The struggles of the Church and State ended in the development of modern democracy, the extension of suffrage, of education, and the idea of public welfare. Does the struggle in industry differ? At the time the Church occupied the forefront, religious ideas and theological discussions occupied the attention of human thought, reaching down to the very foundation of reasoning and relationships. Then the State rose to assert its power. Has our Democracy been politically successful? Have we really attained our hopes? Some turn away perhaps with disgust saying that in industry and industrial activities the solution will be found. Certainly contributions and suggestions are being made, but on the whole one is reminded of the old feudastic struggles for power with the bitter controversies resolving finally into the concept of a finer, higher, community of power and spirit.

Macmillan Company, New York, 1921.

Bright's Disease Decreases

The experience of the Metropolitan Life Insurance Company in losses from Bright's disease indicates a reduction of 30 per cent in the death rate since 1916 as reported in the *Statistical Bulletin.* According to the life tables compiled by the company the average life span of each individual would be increased from one year to a year and one quarter if Bright's disease were entirely eliminated. A campaign for more careful personal hygiene, diminished use of alcoholic beverages, and wider extension of periodical medical examinations will be responsible for a further decrease in mortality from the disease.

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New Views on Vitamines

A NEW book under the caption, "The Vitamine Manual," by Walter H. Eddy, associate professor of physiological chemistry, Teachers College, Columbia University, brings into the compass of one small volume, a comprehensive but very readable account of recent nutritional studies, particularly with reference to certain elusive accessory food factors called vitamines, but which are probably misnamed, have never been fully identified, and really have no chemical identity. Research work of the greatest complexity has set itself the task of solving the problems they present. Meanwhile, the data in hand have compelled us to reform our ideas of nutrition of both adults and infants, and to pick out our food from a new angle.

Guess work in the choice of foods is as much out of date as other games of chance with the cards stacked against one. A great advance was made in the determination of food values with the discovery of the fact that food is to the human motor what fuel is to the engine, and that food eaten liberates in the body practically the same amount of energy it would produce if it were burned in oxygen outside the body. This isodynamic law made it possible to measure the value of a given food in caloric units. It remained only to estimate the caloric needs of men and women in different occupations in order to devise a proper ration for every type of worker.

It was soon discovered, however, that to preserve the nutritional balance is not so simple a matter as merely giving food fuel to the body furnace. While chemical analysis has proved the many varieties of foodstuffs to be chemically combinations of pure compounds of relatively few varieties, even slight variations in quantities or proportions of the necessary constituents cause changes in function. Malnutrition at critical developmental periods modifies types, and the widespread shortage of certain food factors may produce obscure and far reaching diseases among the people.

The investigation of such deficiency diseases resulted in the discovery that the mere caloric concept of food values is inadequate, that diets otherwise meeting all requirements fail in the absence of the vitamines, which are known to be of three types: A, B and C, and that no dietary is rationally planned which does not take into account these accessory factors.

The book in question is useful in the hands of the lay public if only for the tables, one from the Report of the British Medical Research Committee, and a second table compiled from a review of both British and American data, representing a rather more complete classification than the British report, which give vitamine values in all the available foods.

Nor is it safe to assume that all foods supposedly adequate in this regard are uniformly high in vitamine content. It is known that milk, for instance, is merely a mobilization of the vitamines eaten. Cows on winter feeds may produce milk low in vitamines. Also, the food prejudices of a lactating mother—especially if directed against green vegetables—may jeopardize the health of her babe. Or the necessary pasteurization of milk may lower the vitamine content and require to be compensated for by the addition of fruit or vegetable juices to the diet.

The inevitable lesson to be drawn from the benefits so generally reported from the ingestion of yeast is that the tendency of the adult population to confine their foods to meat, potato, and cereal results in a vitamine shortage which calls for salads and dairy products as features of the every day meal.

The correction of these ills is to be found in the intelligent selection of the diet, which is better far that persistent dependence on medicinal correctives. Nature is a better chemist than man and has a much better knowledge than the chemist of what are our dietary needs.

Williams & Wilkins Co., Baltimore, 1921.

Our Social Heritage

THE relation of the individual to his government and the opportunities for his development have been the occasion of much discussion and comment. Graham Wallas is of course a well known author both in the field of politics and of sociology, or perhaps more exactly, the field of social control. His earlier books, "Human Nature in Politics" and later "The Great Society" have done much to focus attention on some of the problems of government. A recent book "Our Social Heritage" continues the analysis entering somewhat more the field of nationalism and internationalism.

Our heritage is in fact twofold. Our nature is our biological inheritance or physical structure. Our nurture consists of that which each acquires for himself, and the knowledge, expedients, and habits, originally the personal acquisition of individuals but now developed through the social process of teaching and learning. This is termed "Our Social Heritage."

We are in fact increasingly dependent on our social heritage, or as Mr. Wallas says "biologically parasitic." Although man has evolved and is still evolving certain modifications of structure and instinct. These increase his power of acquiring and using his social heritage just as they increase his dependence upon it. Through an anlysis of individual cooperation we study the cooperation of groups which in fact requires a combination of socially inherited with biologically inherited instincts. Our socially inherited instincts are imperfectly worked out and are apt to break down at various points and their place taken by the primitive instinctive process. As the experiences of war and diplomacy show, we are untrained for cooperative thought for which the most necessary rule is absolute frankness among the cooperative thinkers. The chief need is to evolve new forms of cooperative processes as men cannot exist in their present numbers on the earth without world cooperation to foster everything which helps to connect cause and effect in long range actions.

In the concluding chapters are analyzed the two forms of thought and action which are to make the good life possible for all mankind, science with its general conception of cause and effect, and the tradition embodied in the church. One turns from the book with the conviction that "the special task of our generation might be so to work and think as to be able to hand on to the boys and girls who fifty years hence at some turning point of world history may gather in the schools, the heritage of a world-outlook deeper and wider and more helpful than that of modern Christendom."

Yale University Press, New Haven, 1921.

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Psychology and Psychotherapy

This book by William Brown concerns itself with those borderline nervous reactions known as hysteria, neurasthenia, psychoasthenia, and the compulsion neuroses, in which he sees a purely psychogenic origin and commends psycho-therapic measures. While antecedent disharmonies or emotional preoccupations of long standing were noted in some of his cases, in his war experience the recent shock or stress of war experience was the major factor. His method consists in a modified hypnotism and suggestion. Mental analysis was found helpful. The success of the method hinged largely upon seeing the cases early.

Different schools of thought, says Brown, tend to emphasize one or another factor of cure. Psychotherapy should take account of them all. He, therefore, discusses and brings into contrast the views of Freud as against Ribot, McDougall, and Sharrd. The views of Freud, he says, are rather vague and incomplete and "also suffer from lack of historical relationship with the work of expert psychologists." He expresses himself as an adherent to Bergson's theory of memory and of the relation of mind to brain. In his chapter on hypnotism and psychical research he sounds a note of warning that in the results of scientific investigation into spiritism it must be made quite certain that the mind concerned is a normal one, as the whole subject borders very closely on the realm of pathological psychology.

Edward Arnold, London, 1921.

The Genuine Works of Hippocrates

The position of the Greek in virtually all fields of thought, his preeminence among idealists and philosophers of succeeding ages, can scarcely be challenged. During his period there arose in the field of medicine, as of art, politics, etc., a gradual distinction between the ethics in medicine or the ethics in politics. The two up to this time had been indistinguishable and for the first time a separation was inaugurated. The distinction was not sharply defined as yet and mysticism still clung to a certain extent, but by the time of Hippocrates there had arisen a very definite trend away from the more or less haphazard or empirical methods to an ever increasing emphasis upon the institutionalization of medicine and exactness of method. In other words, there arose not only a more or less distinct technic, but, what is equally important, the custom of recording their practices—what we now call record taking or bedside notes. In all probability, for the most part at least, Hippocrates may have reflected or merely accumulated the spirit and practice of his time, but he has remained an outstanding figure in the chronicles of medicine.

The dates of his birth and death are uncertain. It is generally agreed, however, that he lived the latter part of the Fifth Century B. C. He numbered among his contemporaries of this perhaps most brilliant intellectual period of the human race Pericles, Aeschylus, Sophocles, Euripedes, Socrates, Plato, Xenophen, Herodotus, and numerous others whose work stands, towering alone above the accomplishments of other men, even despite the disparity of time and place.

It is impossible here to enumerate the steps in the history of medicine. Suffice it to say that the consensus of opinion seems to have designated Hippocrates as the originator of a system of medicine bearing his name and characterized by its emphasis on record taking and prognosis, close observation and deduction,—on the substitution of experience for empiricism. Much of his work has been lost and much that remains has been superseded, but the virility and charm remains intact.

The present book by Francis Adams gives at length the philosophy and knowledge of the time, the authenticity of the works quoted, with a translation and comment upon works generally conceded to be those of Hippocrates: On Ancient Medicine; On Surgery; Law; On Ulcers; etc.

William Wood & Co., New York, 1921.

Women Professional Workers

The woman as a professional worker has been the subject of an investigation by Dr. Elizabeth Kemper Adams for the Women's Educational and Industrial Union. A comment on her position as a professional worker brings, first of all, an analysis of terms, of requirements and recompenses. The author has gathered some very interesting data concerning requirements which are quite generally known and remuneration which are not so well known. During 1918-1919 some eighteen lawyers filed schedules, nine in independent positions, eight in salaried positions, one dean of her own law school. In the independent groups was listed one who was her own father's partner, one her husband's partner, one an editor of a law journal, etc. The salary schedule seems to range from $600 to $5,000 with a median of $1,800 to $2,000. Medical women range from $1,200 and maintenance (about $1,700 in all) to $5,000, with a median salary of $2,600, while in the ministerial field only three salaries are reported ranging from $720 to $2,100; medical social workers $1,500 to $2,600 with a median of $1,800; psychiatric workers $960 to $1,500, median $1,160.

It is impossible here to go down the list of services enumerated, and certain it is that the remuneration alone is not the determinent for either men or women, and yet the maximum here seems to become a minimum elsewhere. If one is for a period of years to devote one's life, hope and ambition, not only the samaritan but the pecuniary idea has its place.

The author has gathered some valuable material and given an impartial presentation of data. The professional woman is here probably to stay; her difficulties and disappointments are not new, but with careful thought and organized effort much of the unpleasantness and hard feeling of the past can be done away with. "But whether she continues her professional work actively or not, the modern woman with professional training and experience is bound to make them felt for the public good, in the home and the community."

Macmillan Company, New York, 1921.

Books Received

A SOCIAL HISTORY OF THE AMERICAN NEGRO. Being a history of the Negro problem in the United States, including a history and study of the Republic of Liberia. By Benjamin Brawley. Cloth, 8vo, pp. 420. The Macmillan Company, New York, 1921.

HANDBOOK OF SOCIAL RESOURCES OF THE UNITED STATES. By Genevieve Poyneer Hendricks. Paper, 8vo, pp. 300. American Red Cross, Washington, 1921.

HOW MUCH SHALL I GIVE? By Lillian Brandt. Cloth, 8vo, pp. 153. The Frontier Press, New York, 1921.

AIDS TO CHEMISTRY. By William Partridge, F.I.C., Joint Public Analyst for the County of Dorset. Lecturer in Chemistry (Public Health), University of London, King's College. Cloth, 8vo, pp. 280. William Wood & Co., New York, 1921.

AMERICAN CHILD HYGIENE ASSOCIATION, formerly American Association for Study and Prevention of Infant Mortality. Transactions of the Eleventh Annual Meeting, St. Louis, Mo., October 11-13, 1920. Paper, pp. 440, 8vo. Franklin Printing Company, Baltimore, 1921.

READINGS IN EVOLUTION, GENETICS AND EUGENICS. By Horatio Hackett Newman, professor of zoology in the University of Chicago. Cloth, 8vo, pp. 523. The University of Chicago Press, Chicago, 1921.

A MANUAL OF PHARMACOLOGY. By Walter E. Dixon, M.A., M.D., B.S., B.Sc., D.P.H., F.R.S., etc. Cloth, 8vo, pp. 468, 5th Ed., Rev. Edward Arnold & Co., London, 1921.

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Maternal Mortality in New York City

A total of maternal death rates from all causes connected with the puerperal state, based on 10,000 labors (live and still births) for the years 1915 to 1919, is given as follows for certain American cities and two European cities where the data were available: New York City, 46.11; Philadelphia, 61.48; Baltimore, 64.89; Boston, 70.71; Stockholm (Sweden), 40.42; and Birmingham (England), 33.49. The average total rate for all diseases connected with the puerperal state in New York City, 46.11 for 10,000 labors, is conspicuously lower than that for any other city in the United States under consideration. It is, however, 35 per cent higher than Birmingham. The average rate for puerperal septicemia is not only lower than that for Birmingham, but the rate for this infection has fallen considerably throughout the five-year period, and in 1919 reached 11.41 for ten thousand labors. It is estimated that the registration area of the United States for 1918 contained 53 per cent of the population of the United States and some of the largest cities of the Atlantic Coast and Great Lakes region, excluding Chicago.

In discussing the analyses of the death rate, William Travis Howard, Jr., of Johns Hopkins University, writing in the *American Journal of Hygiene*, May, 1921, points out that the death rate, whether viewed in comparison with the death rates for England or Wales or considered alone are exceedingly high. To match the rate for the whole puerperal state, 88.48 per 10,000 births, it is necessary to revert to the Swedish rate of 1806 to 1810 (89 per 10,000 deaths). It is more than double the Swedish rate for 1851 to 1855, 75 per cent more than the average rate for England and Wales for 1847 to 1876 (50 per 10,000 living births) and 120 per cent greater than the average rate for the latter area for 1911 to 1915 (40.31 per 10,000 living births), although an allowance for still births was made.

The reduction of maternal death rates is due in a large part to the administrative measures brought about by the better protection of women during the puerperal period, and the raising of the standards of obstetrics by midwives. Measures of this kind have been carried out in New York the last twelve years and by the Department of Health and considered to be essential in any well-rounded public health program. Control of the practice of midwifery includes refusal of issuing a license to any midwife who had not practiced in the city prior to 1907 unless she is a graduate of the Bellevue Hospital School for midwives which is maintained by the City of New York and has an eight months course of instruction, or unless she is a graduate of an accredited European school of equal or higher standing.

The Bureau of Child Hygiene, in addition to this, carries on a systematic and widespread supervision of the practice of these women, who at the present time report about 37 per cent of all births.

In the period of years, 1914 to 1918 inclusive, among mothers who have received the advantages of pre-natal care, the percentage of maternal deaths during the period of pregnancy was .24 as compared with .45 for the city as a whole, a reduction of about 50 per cent, while the death rate under one month of age per thousand babies born to mothers under pre-natal supervision was 17.7 as compared with 36.3 for the same type of babies in the city as a whole, again a reduction of over 50 per cent. What New York has accomplished is entirely possible for any community.

Common Cups Illegal in Forty-One States

Forty-one states in the Union have abolished the use of the common drinking cup in all public places by state laws or regulations of the state boards of health. At the time of the compilation of a report, December, 1920, the following states had no legislation prohibiting the use of the common drinking cup: Georgia, South Carolina, North Carolina, Iowa, Texas, Nevada, Washington, and Wyoming. There are no laws in Canada preventing the use of the common cup though paper cups are generally used in cities.

Offer International Hygiene Diploma

Three European Universities, in England, France and Switzerland, respectively, are for the first time this year conducting courses leading to an international diploma in hygiene. The University of Cambridge, the University of Paris, and the University of Zurich are conducting the courses which are open to physicians from other lands.

Call World Congress of Anesthetists

The first world's gathering of anesthetists will be held in October, 1922, when the World's Congress of Anesthetists meets at Columbus, O. Invitations have been extended to leading members of the profession in London, Paris, Vienna, Buenos Aires and Sydney. The World Congress will be held in conjunction with the next annual meeting of the National Anesthesia Research Society.

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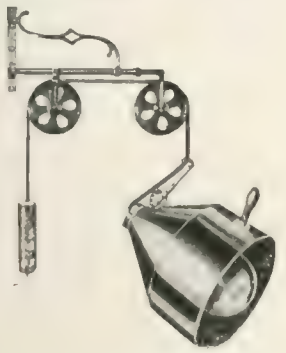

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Illinois Seeks to Increase Birth Registration

In order to attain the 90 per cent birth registration, the figure required for admittance into the national Registration Area and in compliance with a resolution passed by the Illinois Board of Public Health Advisors, Dr. I. D. Rawlings, State Director of Public Health, has sent letters to every physician and mid-wife practicing in Illinois urging the registration of births.

A law providing for the registration of all births, still births and deaths was passed by the Illinois General Assembly to take effect July 1, 1915. For lack of appropriations it did not become effective until January 1, 1916. Though this law provides that "it shall be the duty of the attending physician or midwife to file a certificate of birth, . . . with the local registrar of the district in which the birth occurred within ten days after the date of birth," only 82 per cent of the births in Illinois have been registered.

The letter urges that the report of such births be sent in immediately so that when the United States government checks the registration of births in Illinois for 1921 the number found registered will be sufficient to admit Illinois to the Registration Area.

Dietitians Needed in Public Health Service

The United States Civil Service Commission states that there is need for a considerable number of dietitians in the Public Health Service at Hospitals throughout the United States and that until further notice it will receive applications for such positions.

The basic entrance salary offered is $960 a year with possible promotion to the basic pay of $1,344 a year. To all salaries there is added the increase of $20 a month granted by Congress. In addition, quarters and subsistance are furnished free by the government.

Applicants are not required to undergo a written examination, but are rated upon the subjects of general education, weighted at 30 per cent, and technical training and experience, weighted at 70 per cent.

Full information and application blanks may be obtained by communicating with the United States Civil Service Commission, Washington, D. C., or with the local board of civil service examiners at the post office or customhouse in any city.

University of Iowa Has New Department of Eugenics

A Department of Eugenics has been organized by the Child Welfare Station of the University of Iowa to investigate genetic principles and their application to child welfare. Dr. P. W. Whiting has been appointed to have charge of the work.

Europe Seeks to Safeguard Children Farm Workers

In Europe as in the Western hemisphere there are but few examples of direct legislation bearing upon the labor of children in agriculture. The majority of the European States, have, however, sought a safeguard for children in rural districts through the direct operation of education laws by which the age of a child's admission to general employment can be more or less controlled. Compulsory education, with a school term of sufficient length, supervision to insure that all children of school age are not employed in school hours, and proper certification, should control the situation.

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Smallpox and Typhus Fever in Chile

By Our Latin-American Correspondent

During the past winter (June-July, 1921), small pox made its appearance in Santiago de Chile but did not assume alarming proportions until September, when it was reported that there were over 4,000 cases in that city alone. The Federal and Municipal Governments have put every available measure in force for the control of the epidemic which it is greatly feared will spread to the surrounding provinces. In this work it is much hampered by the lack of hospitals, equipment and supplies. The public press has responded magnificiently and is carrying on a campaign of public education, urging their readers to be vaccinated and to cooperate with the health authorities in the enforcement of the sanitary regulations. To make the situation more serious the disease has appeared in Valparaiso and is gaining headway. Typhus fever is prevalent in Santiago and the surrounding provinces. The Minister of the Interior has called a meeting of the sanitary officers at Valparaiso for the purpose of evolving a concerted plan of action for the eradication of the epidemic.

In a speech before the Chilean Senate, Senator Juan Enrique Concha stated that he believed that there are being treated at present at least 10,000 cases of smallpox in Santiago alone, although the total reports for all Chile from January to September, 1921, showed 5,500 cases and 2,500 deaths. Of these cases 2,546 were treated in hospital with 1,147 deaths. In all Chile from October, 1918, to September, 1921, inclusive, there were reported 23,256 cases of typhus of which 5,882 died.

Cost of Education in United States to be Investigated

An investigation of the cost of education in the United States and the public resources available to support it is to be made by a commission representing the American Council of Education. The expense of the survey will be met by the Commonwealth Fund, the Carnegie Corporation, the General Education Board and the Milbank Memorial Fund. In typical States and communities studies will be made of the existing program of public education, the extent to which this program is carried out and the present and prospective costs involved.

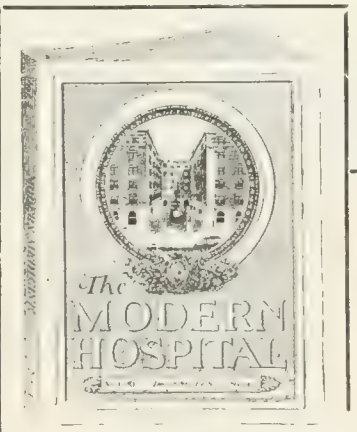
Dr. McKay New York Child Hygiene Director

Dr. Florence L. McKay has been appointed Director of the Division of Child Hygiene of the State Department of Health, Albany. For the past year, Dr. McKay has been assistant director of the Division of Child Hygiene of the Federal Children's Bureau.

New Allied Investigations

The physical growth of children from birth to maturity is the subject of the first published study of a series of investigations in the field of child welfare undertaken by the University of Iowa with a view to formulating standards which will establish a basic science for allied investigation in mental, educational, social, and moral development of the child. Clinical studies in nutrition are an important part of the contribution.

The organization of existing human society with a view to its future welfare is the crowning task of the science of man; it needs the keenest minded investigators, the most stringent technic, and the utmost sympathy from all classes of society itself. —Pearson.



ARE you making every effort to keep posted on new ideas and more progressive methods of handling your work? Do you apply the results of others to your problems so as to determine whether or not the new way of doing the old things is the best way?

Whether you are a doctor, nurse, surgeon or member of a hospital board, there is but one way to get practical advice and reliable expressions on the very latest and most important hospital and institutional problems and that is through THE MODERN HOSPITAL. There is but one way to get month by month the expressions of the leading men in the field and that is through the dominant publication of the hospital field. You cannot profitably be without THE MODERN HOSPITAL.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV Chicago, February 15, 1922 Number 2

Federal Aid in Industrial Rehabilitation

BY TRACY COPP, SPECIAL AGENT FOR INDUSTRIAL REHABILITATION, FEDERAL BOARD FOR VOCATIONAL EDUCATION, WASHINGTON, D. C.

THE Federal government is offering to finance jointly with the states a plan to place persons handicapped from disease and accident in the way of a better and more remunerative position in life. All but a very few of the states have accepted the offer of the Federal government and before many months have passed the social machinery will begin to function in earnest in the interests of those who are to get a "better chance."

During the last ten years the workers in the industries of the country, with some exceptions, have been compensated for the injuries occurring in the course of their employment. The operation of these laws has become automatic in most cases. Controversies may arise over compensation settlements, though in only a small percentage of them does it actually become serious. Advances have been made in the interests of the workingman, while victims of public disaster and street accidents are left to get justice as the workingman did before the compensation laws were passed.

The Placement Problem

Compensation for industrial accident may have been intended to support an injured man during his recovery and convalescence and to pay wage losses due to his vocational handicap during the rest of his industrial life. Whatever was intended the result is, however, that industrial accidents have been greatly reduced since the passage of the compensation laws. Since the cost of accident has been borne by industry the prevention of them has been good business. Whether or not compensation payment has assisted injured workmen over the rough places in industrial life may be difficult to determine. We know that in all but a few states the injured workman has been left, handicapped, as he was to seek new work in the way whole people do it. Besides having the range of opportunity for work curtailed by an impaired body, he suffered the additional hardship of sometimes being rejected because of the effort required to place him suitably. We are preparing, through this joint financing scheme to make an arrangement by which handicapped persons are restored to usefulness, not by a trial and error system, but a system which will estimate a man's assets and proceed to put him in a position to get the maximum use of them.

Baking establishments offer some opportunities for the employment of disabled persons. Consequently, when this man was disabled in his employment, he was placed at a task that he could perform in the industry in which he was experienced. Bureau of Rehabilitation, Department of Labor and Industry, Commonwealth of Pennsylvania

Persons injured by causes outside of industry are to be rehabilitated by the same social proceeding. Persons afflicted by disease, injured in street accidents, and in public disaster are to be given the same chance to help themselves to more profitable endeavor.

Before vocational rehabilitation is undertaken for any disabled person, every available source, by which physical restoration may be accomplished should be exhausted. Surgeons have accomplished miracles in the transplanting of bone and tendon in the endeavor to make whole the mutilated and broken bodies of victims of disaster and mishap in life. Much more will be accomplished along these lines during the next few years. Similarly the use of mechanical devices and prosthetic appliances will be more general. Genius and mechanical skill are making great impressions in this almost untouched field.

The whole social procedure in rehabilitation takes a person from his handicapped position in life to a new level which gives him as near an equal chance with others as it is possible for him to have. There will be profit, real profit, for individuals, for industry, and for society, where the proper service is given to the handi-

New Jersey holds that industrial rehabilitation is not merely one that looks well and has healed satisfactorily. It implies as complete a restoration of function as is possible under the circumstances, muscular and it may be mental re-education to enable the man to take up his own problems of labor in competition with his fellows.

capped. People are rehabilitated only when they are happily and profitably employed. The scheme is bigger than physical care, bigger than employment, it is bigger than vocational training, it is bigger than advisement and guidance. It is a social procedure embracing all of them, and patch work, if any one of them is neglected.

The United States will have all but few of the states as partners in this undertaking. According to the present available records, thirty-four states are or will very soon, be undertaking the rehabilitation of civilians. The states are required to match the Federal money; they are required to make plans for the conduct of the work by the State Board for Vocational Education, and they are also required to prepare a statement of a working and workable agreement between the State Board and the Compensation Agency. With this done, the machinery is ready to be set in motion.

The program of civilian rehabilitation will fail in its big purpose if, through the accumulation of facts relative to accident and disease, the program of prevention is not forcibly advanced.

State Directors for industrial rehabilitation are being selected from the field of industry, social service and business. The success of the work will be measured by the vision of the executives and the support and confidence given to the state administration by business and social agencies, by fraternal groups and organizations of workers.

The operation of a press caused the loss of the greater portion of the right hand of this young lady. She is preparing for a clerical task which is available for her when her training is completed by the Bureau of Rehabilitation, Department of Labor and Industry, Commonwealth of Pennsylvania. Thus are handicaps really welcome.

Milk as a Factor in the Nation's Health*

How Health Quotients Would Rise if the Ten Billion Gallons of Milk Used Annually Were Clean!

By J. G. TOWNSEND, Surgeon, United States Public Health Service, Washington, D. C.

To raise the level of national health is one of the surest ways of raising the level of national happiness.—W. E. H. Lecky.

TO RAISE the level of national health, prevent preventable diseases and thereby insure longer life to the thousands who needlessly die, is the ambition and hope of every sanitarian, local, state, and national.

As milk is perhaps responsible for more sickness and deaths than all other foods combined and is in more nearly universal use, from the cradle to the grave, than any other food, it is a factor all absorbing and ever alive in the health conservation of our body politic. The cardinal points which inaugurate and perpetuate the "milk question" are (1) milk is necessary, (2) milk can be dangerous, (3) milk spoils rapidly, and (4) milk is consumed in the raw state.

I wish in this article to review the proper steps necessary in handling milk from the cow to the ultimate consumer, and, in this chain of sanitary control, to emphasize that each link has a significance, which, if not appreciated, weakens the whole procedure in proportion.

With the substitution of cow's milk for mother's milk in infant feeding and its general use as a part of the modern dietary of all ages in health and disease, the annual consumption of milk in this country, on the average, reaches the enormous figure of ten billion gallons, one-fourth of this being consumed as milk, the remainder as butter and

The first herd in the United States officially declared to be free from tuberculosis.

*Approved for publication by the Surgeon General.

AUTHOR'S NOTE.—I am indebted to Dr. L. B. Ernst of the Department of Agriculture for the photographs shown in this article.

Type of milk house too frequently found. Bad facilities for storing foster indifferent cleaning and handling.

Cans properly cared for in a model milk house. Modern methods make cleanliness simple and easy of attainment.

cheese. Indeed, the cow may be called the "foster mother" of mankind. Naturally, her care and cleanliness is a fit starting-point in the "milk cycle."

Clean Cows First Essential

The mechanical washing of the bellies, flanks, and udders of cows, before each milking, to prevent visible dirt from gaining entrance into the milk is a procedure of such obvious necessity as to need no discussion, yet the lack of a proper appreciation of the danger from its neglect or the loss of time it entails to the milker, results in such practice being all too uncommon at the average rural dairy farm.

The Department of Agriculture reports an experiment with open, sterilized milk pails to which samples of fresh milk from dirty cows were added. This milk had an average bacterial count of 55,208 per c.c., while the samples of fresh milk from clean cows, with udders and teats washed, had an average of but 4,947 per c.c.

When we speak of bacterially clean cows, we instinctively think of bovine tuberculosis. Most of the tuberculosis of children is in the bones, joints, and intestinal tract, leading to the belief that milk may be one of the chief causative agents. The theory is also before us that generalized tuberculosis in adults may be the result of the activation of an early infection in childhood, acquired through the milk from tuberculous cows. This question of bovine and human tuberculosis has been summarized by Hatch, of Indianapolis, as follows:

The only practical way to arrive at any conclusion on this subject is by study of the type of bacillus present in cases of tuberculosis in the human. This study has been made by various observers, who find that approximately one-third of the cases of tuberculosis in children are due to the bovine type of bacillus.

E. C. Schroder in the *Journal of American Veterinary Medicine* of July, 1921, says: "Practically every case of tuberculosis in the human subject, due to bovine bacilli, must be charged to intimate contact, in most cases through the ingestion of contaminated dairy products, between persons and tuberculous cattle."

Rosenau in "Preventive Medicine and Hygiene," 1920, estimates that 7 per cent of all tuberculosis in man is of bovine origin, also that in a total of 551 samples of milk examined in four typical American cities, tubercle bacilli were found in forty-six, a percentage of 8.3, which can be taken as the average for the entire country.

These facts outline a basic health problem of the milk industry and cannot be too widely displayed for the sober contemplation of all milk producers and consumers.

The only way to detect early tuberculosis in cattle is through the medium of the tuberculin test.

Herds may appear perfectly healthy and yet be infected with tuberculosis. The cows in a diseased herd often do not look materially different from a herd free from tuberculosis.

According to the Department of Agriculture standards, cows should

Part of a 75 per cent tuberculous herd. All animals in this group were classed as reactors, and found to be tuberculous on autopsy. Note the fine appearance of the animals. Seventeen cases out of the fifty-seven condemned were found to be very badly diseased.

be tested for tuberculosis at least once a year, and, if reactors are found, tests should be made twice a year in a herd. All reactors should be removed from the herd and the stables and premises disinfected. All new cows purchased should be tuberculin-tested before associating with the herd.

Clean Milkers

Of equal importance with clean cows are clean milkers, clean from a standpoint of visible dirt and clean from a standpoint of milk-borne diseases. I have visited a Government-operated dairy farm in which provision was made for clean gowns for milkers and facilities for the thorough cleansing of the hands of each milker. Mechanical cleansing of cows was also religiously carried out, with the result that this dairy farm was producing milk with a bacterial count of 4,000 to 6,000 per c.c. without pasteurization. Unfortunately, the custom is all too prevalent at many dairy farms of the milker's rinsing his hands in the first milk drawn, wiping them off on a dirty part of his overalls and then commencing the milking process,—unthinking, and, in all probability, without the slightest conception of what his practice might mean to the community served.

The diseases most commonly recognized as being milk-borne are typhoid fever, scarlet fever, diphtheria, septic sore throat, infantile diarrhoea, tuberculosis, foot and mouth disease, and milk sickness. Frequent examination of milkers for the determination of typhoid carriers and immunization by innoculation should be, whenever possible, adhered to and insisted upon.

As an example of what might happen from infected milkers, I remember very distinctly, in the summer of 1918, while engaged in public health work at one of the large mobilization camps in the West, of finding a milkman with his throat and tonsils covered with diphtheritic membrane, with a temperature of 103° F. and with all the symptoms of diphtheria, which were later confirmed by a bacteriologist, milking the cows and from time to time coughing over the bucket of milk which was intended for the camp. The only thing that appealed to him, I suppose naturally, when his whole output was condemned and he himself was placed in quarantine, was the financial loss involved and not the terrible potential danger which was prevented by this inspection. A series of five hundred milk-caused epidemics tabulated by Trask of the Public Health Service included 317 of typhoid fever, 125 of scarlet fever, 51 of diphtheria, and 7 of epidemic sore throat.

A sanitary milk plant. Washing and steaming cans

Clean Utensils

Clean milk will not stay clean if placed in unclean pails, cans, or bottles. A popular recognition of this fact would greatly strengthen this link in the chain of sanitary milk control.

The Small-Top Pail.—I wish that the small-top pail were more generally used at the dairy farm and that dairymen would realize that milking into a small-top pail, although perhaps awkward at first, is really just as easy as into the large, open type. It stands to reason that the small-top appliance will of necessity receive less dirt and sediment than the large, open receptacle. The Department of Agriculture has made some very interesting experiments in the relative quantities of sediment in milk drawn into open-top and small-top pails. It appears from these experiments that practically twice as much dirt and filth precipitate into an open-top pail as into that of a closed nature. It has been found by the Department of Agriculture that the average number of bacteria per c.c. in thirty samples drawn into a small-top pail was 29,263, while an equal number of samples drawn into an open-top pail averaged 87,380.

The Cans.—From a small-top milk pail, the commodity should be poured through a strainer into a clean can, and then rapidly cooled by packing in ice or submerging in cold water, or immediately pasteurized and cooled. Finally, the milk should be placed in clean, sterilized bottles, securely capped, and properly iced and delivered, or, when the milk is shipped in cans, as is the more common practice at the smaller dairy farms, the cans should be properly iced. The cans should not be allowed to stand on station platforms in the hot sun waiting for the milk train, by which practice they become converted into veritable incubators, and facilitate the propagation of pathogenic bacteria, which know not the meaning of race suicide.

Cans and pails should be of tin and properly washed and sterilized, proper attention being given by the dairyman to the cleansing of the upper rim of the cans and buckets, which very often escapes even vigorous cleansing, and supports a thin, hard crust of dried milk, in which numerous bacteria live and have their being, only to propagate more intensively when fresh milk is added to the utensil.

A type of milk house too frequently found is shown in one of the illustrations presented herewith which represents a group of cans improperly washed, not sterilized, and stored in a work shop. Clean milk production under these conditions is impossible. In contrast, another figure shows properly washed and sterilized cans inverted for drying in a modern and sanitary milk house.

The Bottles.—Milk bottles, when

used on the rural farms, should be given the same scrupulous attention as is given the tinware, being thoroughly washed in soap and water, rinsed in clear water, and, if possible, sterilized with steam before being filled. The proper use of caps for bottles should be emphasized. I have personally seen caps labeled "Pasteurized" inserted on bottles containing unpasteurized milk, merely because there was at that time a scarcity of caps. In this case, the only thought of the dairyman was to meet an emergency, in order that the milk might be delivered, and overlooking the fact that he was guilty of gross misbranding.

The proper sterilization of utensils on rural dairy farms is oftentimes difficult of accomplishment, due to lack of steam or equipment. Bottles, however, can be boiled at any farm and simple forms of sterilizers have been devised for the dairyman by the Bureau of Animal Industry, Department of Agriculture.

Pasteurization

In 1860-1864, when Pasteur discovered that abnormal fermentation and souring of wine could be prevented by applied heat, he little thought what a boon such a step would become in the milk industry. It was not until 22 years later that heating of milk for infants was advocated by the chemist Soxhlet, and succeeding experiments have developed the modern Pasteurization methods as are known today.

Universal milk Pasteurization would be a signal step in preventive medicine. The process is becoming continually wider in its application, as its value is becoming better known.

Pasteurization is of special moment in creameries, where commodities from numerous outlying dairies are brought in to a central plant and there mixed before being bottled and delivered. I have visited creameries where milk, from a radius of one hundred miles, flowing in from three hundred dairies, met on common ground in the mixing vat, bringing the purest milk produced to the level of the dirtiest, and so the use of applied heat at the distributing point is most important.

It is a most valuable guarantee when individual inspections assume such magnitude as to make such procedures impossible as a means of municipal control. For example; in New York City in 1912, the milk supply averaged 2,500,000 quarts daily. This milk came from 44,000 farms in six states and was the product of about 350,000 cows. Some of it had to be transported four hundred miles or more. It was estimated that 127,000 people were engaged daily in handling the milk supply of that city.

In brief, there are two methods of Pasteurizing milk:

(A) The "Flash" Process.—The milk flows from the receiving tank to the Pasteurizer, where it is heated at a temperature of 178 degrees F. momentarily and then cooled to 35-45 degrees F.

(B) The "Holding" Process.—This differs from the Flash process, in that the milk is heated only to 145 degrees F., but is kept at that temperature for thirty minutes. It is then cooled as in the Flash process.

Pasteurization in bottles is practiced on a small scale and is the ideal method, as thus reinfection from Pasteurization to the consumer is prevented.

Farm Pasteurization at the average local dairy is most uncommon, due to the lack of its appreciation and the disinclination to incur the expense of such equipment. When it is done, credit is given by the dairyman to its use more as a preservative than as a bacteria destroyer. There are a number of Pasteurizers on the market for the dairy farm and for the home.

While it is duly appreciated that Pasteurization, when properly accomplished, renders inert 99 per cent of the bacteria content, it is not, in itself, a solution of the "milk question," nor must it be regarded as the all-absorbing factor in pure milk production. It "purifies" milk, but has no influence on the steps which should be taken to render milk pure. It is a sense of false security to depend entirely on Pasteurization, as the "Flash" and "Holding" temperatures and time intervals are so variable at different plants, without constant inspections. Pasteurization should be regarded as an adjunct in the "pure milk business" and a link in the chain of endeavor.

Rapid cooling of the product is necessary to make Pasteurization most effective, and, in any event, milk should be cooled immediately after being received from the cow (to keep down the bacterial count) and conveyed to the consumer as soon as possible. No matter what conditions prevail at the rural farm, cooling, in one way or another, may be easily accomplished, from the method of placing the cans of milk in cold water to the purchase of special apparatus for aeration and cooling. Cooling is another most important safeguard against milk souring. Experiments conducted by the Department of Agriculture have shown that milk at 100 degrees F. will sour in from twelve to thirty-six hours, depending on the initial bacterial con- [illegible] to 396 hours.

After cooling, the next operation expected of the dairyman is to con-

The ideal way to [illegible]

Conditions connected with milk production, which are far more common than realized.

vey his product to the local market without delay. At this juncture, the sanitarian is confronted with arbitrary hours for the dairyman to make his trips to town in "uncovered wagons" or train schedules, which oftentimes necessitate the milk dealer leaving the milk cans at the station exposed to the hot rays of the sun, facilitating enormous bacterial propagation in a most desirable culture media.

It is possible to keep the milk cool in transit either by the use of insulated cans, which are in reality large thermos bottles, by wrapping ordinary cans in felt jackets, or placing them in sacks filled with ice. The Department of Agriculture accomplished some very interesting experiments, in which four ten-gallon cans of milk, cooled to 44 degrees F. were hauled a distance of fourteen miles to the railroad station. The cans were then shipped by rail in an ordinary baggage car for more than a thousand miles at an average temperature of 80 degrees F. In the unprotected cans, the milk reached a temperature of 60 degrees when they had traveled about ten miles from the farm before reaching the railroad, whereas, milk in the chilled and protected cans did not reach a temperature of 60 degrees F. until after they had traveled nearly four hundred miles on the railroad.

Granting that the dairyman is honestly endeavoring to turn out a supply in conformity with the foregoing necessary procedures, if he has not the requisites of "sanitary" physical surroundings, he has a terrific handicap to overcome.

The water supply in which all utensils are washed should be of the best, from sources properly protected from subsoil and surface soil pollution, and upgrade or far enough away from the site of excreta disposal to make contamination from the human body impossible.

For a number of years, the United States Public Health Service has been studying the problems of excreta disposal at rural homes and farms and has made extensive surveys in numerous states in its Rural Sanitation Studies. The Septic Tank (L. R.S.), or concrete vault, which requires little more than common sense care, is advocated and should always be evident on dairy farms. The sanitary privy is the "first line trench" against typhoid invasion of milk supplies.

The properly constructed and screened milk house, stable, and milking barn are investments well worth while in the dairy business in helping to give the consumer the opportunity to drink a clean product. Clean stables and barns, with periodical scattering of manure and disposal of garbage, will practically eliminate, or reduce to a minimum, fly breeding and the subsequent danger of filth born disease in milk by a too close association of flies and dairies.

An illustration is presented of a type of combined stable and milking barn, which, being all too common in our country today, is not a far cry from epidemics of disease and death. Would the public tolerate milk brought to them from conditions such as these, if they saw behind the scenes?

The picture presented of a typical modern sanitary milking barn, with metal stanchions, sanitary gutters, concrete floors, and containing *clean* cows and milkers is a pleasing contrast. After milking, these cows are driven to a clean, well ventilated stable and the milking barn thoroughly cleaned.

It must be appreciated that all dairymen cannot afford these expensive outlays, but cleanliness is cheap and the sanitarian and general public have a right, at least, to expect that.

The story of safe milk production in itself is not new, but only the practical application of its principles, and, to make these principles more widely known and understood, the story cannot be told too many times.

The United States Public Health Service is ever working on the "milk question" and, through its surveys in rural districts and municipal distributing plants, is striving to assist in safeguarding the supply, to the end that the product furnished may, indeed, be likened to that essence commonly known as "the milk of human kindness," which carries with it health and happiness.

Institute for Social Welfare Established in Italy

Under the direction of Professor Ettore Levi, member of the Supreme Health Council of Italy, the Italian Institute for Social Welfare, Hygiene and Aid was organized with the endorsement of the League of Red Cross Societies. The aims and functions of the Institute are: to provide a research center for studying causes of disease and means for combating it; to establish an information center on all health and welfare problems for officials, employers and other groups; to act as a clearing house or coordination center for all national and district welfare organizations; to provide a technical and consultation bureau at the disposal of important industrial, commercial and agricultural enterprises; and to provide also a center for testing out new social measures.

Health Insurance in Spain

According to a dispatch from Madrid in the New York *Times*, a bill providing for compulsory health insurance of all workers in Spain has been approved by the Health Council and will be submitted to the Cortes for adoption. It is expected that the amount to be contributed by the workers will be small though liberal benefits will be awarded.

An Indigenous Fish Used in Combating Malaria*

Once the Causes and Methods of Transmission of Diseases Are Discovered, the Remedy is Simple

By H. H. HOWARD, M.D., International Health Board, New York City

THE control of malaria is becoming more and more a matter of interest and concern to sanitarians and those to whom is entrusted the care of the health of the people, as we have come to understand more fully the economic burden to which this disease subjects the people of those sections where it prevails. The people at large are manifesting much more than a casual interest in late years in measures for the control and prevention of this and other diseases, which they are beginning to realize are not unavoidable visitations of Providence, but are preventable ills which are being permitted unnecessarily to exact from them annually a heavy toll through reduced efficiency, lowered vitality, increased susceptibility to tuberculosis and other diseases, and, too often, the untimely death of loved ones.

A Question of Economics

The economic importance of malaria may be more thoroughly understood when its extent throughout the world is realized. Creighton, in his article on malaria in the Encyclopedia Britannica, states that malaria has been estimated to produce one-half of the entire mortality of the human race. As it is the most frequent cause of death in the most densely populated sections of the globe, the estimate may be taken as at least rhetorically correct. Dr. Wickliffe Rose in a recent article states that, of the 1,600,000,000 inhabitants of the world, more than one-half live in countries in which malaria is prevalent. Dr. L. O. Howard, in 1909, estimated that there are 3,000,000 cases of malaria in the United States annually. Since malaria is estimated to take away one-quarter of the productive capacity of the individuals suffering from it, the annual loss for the United States for malaria is said to be not less than one hundred million dollars.

In other countries infection is more severe than in the United States. Dr. Wickliffe Rose states that in India alone malaria causes about 1,130,000 deaths and more than 100,000,000 cases of illness per year—altogether an estimated economic loss of $284,000,000, not including the impaired productive power of labor. In Italy about five million acres remain, not uncultivated, but imperfectly cultivated because of malaria. In 1900 Celli estimated the number of cases of malaria per year in Italy at 2,000,000, and the mean annual malaria mortality for a number of years preceding that date at 1,500.

The difficulties which attend the control or prevention of any disease are determined, in a large measure, by the nature of the disease and more especially by the method of its transmission. Malaria, in common with many other diseases, exists and can be transmitted only in the presence of dual hosts—man and the Anopheles mosquito. A part of the life cycle of the malarial parasite is spent in the blood of man, and the remainder in the body of the Anopheles mosquito. The parasite must be received by the mosquito from the blood of man and undergo a process of growth and development in the body of the mosquito before it reaches the infective stage which will permit the mosquito to transmit it to man. Further changes and developments of the parasite must occur after its introduction into its human host which prepare it for re-entrance into the body of the mosquito. It can thus be seen that in any attempt at the control or prevention of malaria, there are three logical points of attack: (1) The destruction of the malarial parasite while it is in the blood of man; (2) the prevention of contact between man and the Anopheles mosquito; and (3) the destruction of the Anopheles mosquito before it can function as a host and in the transmission of the malarial parasite to man.

The destruction of the malarial parasite in the blood of man can be accomplished only by the administration of quinin in proper dosage and for a sufficient length of time.

The prevention of contact between man and the Anopheles mosquito may be measurably accomplished by the proper location of homes sufficiently distant from mosquito breeding areas, or by the use of screened habitations and mosquito nets.

Life Cycle of the Mosquito

It is the purpose of this article to discuss the third and last point of attack, i.e., the destruction of the Anopheles mosquito before it can function as a host and in the transmission of the malarial parasite to man, and to do so intelligently we must first know something of the life cycle of the Anopheles mosquito.

There are three active stages in the life cycle of the mosquito, the larval and pupal stages, which comprise the aquatic life of the mosquito, and the

No. 1. View of portion of district. Showing gully formation due to erosion from artificial and storm water

*Part II, the concluding portion of this report will appear in the March issue of The Nation's Health.

No. 2. View of portion of district. Photograph taken after one of the unfrequent snow storms which are experienced in central Mississippi.

imago or winged adult mosquito. The female mosquito deposits her eggs upon the surface of the water, the eggs hatch into larvae—"wigglers" or "wiggle-tails"—in from twenty-four hours to a few days, the time varying with temperature and other environmental factors. The larval stage requires from one to three weeks, being shortest in tropical climates. The pupal stage is commonly short, lasting only for a day or two when the imago, or winged adult mosquito, emerges. The normal life time of the female mosquito is said to be about three months, though under certain conditions their life time may be much prolonged.

The male mosquito, like the drone bee, is of short life and serves only to fertilize the female. The female mosquito only is concerned in the transmission of disease.

In mosquito control the minimum time required for the development of the mature mosquito from the egg, ten to twelve days, is taken as the basis for the formulation of control measures.

It is during the aquatic stage of its existence, i.e., prior to its winged life, that the mosquito is most vulnerable to attack, and it is likely for this reason that for years the sanitarian has directed his attention in the main to its control or destruction during this period by the several methods of drainage, oiling, larvicides, etc. These methods, while often effective, seem practically prohibitive in cost if we would attempt to apply them to the immense area of the world's surface, and the great population which must be handled if malaria is ever to be controlled.

Not the least valuable contribution made through the science of entomology to the world's knowledge has been the discoveries which have made possible the control of certain devastating insects, which have from time to time threatened some great industry, by introducing and marshaling against them some other insect or agency which would, as a natural enemy, attack and destroy them, or at least greatly limit their activities and powers for harm. Notable instances of this sort are as follows:

The introduction of the ladybird or ladybug, a beetle of the family of Coccinillidae, for the control of scale insects and plant lice; the control of the brown tail and gypsy moths in New England by the introduction from Europe of the parasites of these moths; the ordinary cabbage worm (Pontia rapae) is combated by an Ichneumon fly (the Apanteles glomeratus). This fly was imported in 1883 from England and it has been applied with success.

Great Economy of Effort

This pitting of Nature against herself, where effective, has in every instance had the advantage of great economy in cost and effort as compared with any purely artificial means of control.

Many years have now elapsed since we first knew of the important rôle played by the mosquito in the transmission of disease, during which time many artificial methods of control of mosquito production were developed and practised, all of which were expensive in application and, with the exception of permanent drainage schemes, were neither entirely satisfactory nor certain in their results. It was remarkable that during this time no attempt was made to find a natural enemy with which to combat the mosquito, or to develop or test in a systematic manner those agents in nature which have been casually mentioned or recommended by various writers for this purpose from time to time.

Professor A. C. Chandler, of the Oregon Agricultural College, writes as follows:

Up to this time (1919) practically no use has been made of the natural enemies of the mosquitoes. Application of kerosene to the water to kill mosquito larvae at the same time make it an unbearable place for the natural enemies of mosquitoes, and so things may be worse off than before unless the applications are continually repeated.

The following statement bearing upon the same matter appears in Volume No. 1, "The Mosquitoes of

No. 3. Stock Pond. More than eighty stock ponds were found in the district, many of which were breeding Anopheles mosquitos profusely. The ponds were essential for the convenience of the people and could not be filled or drained. Experiments with oiling showed that this measure was ineffective to prevent mosquito breeding in the ponds, and oiling also rendered the water unfit for the stock. Had it not been for the use of the top minnow to control mosquito breeding in the ponds, mosquito control would have been rendered impossible.

North and Central America and the West Indies," by Howard, Dyer, and Knab:

Almost no use has been made artificially of the natural enemies of mosquitoes except fish. . . . For a long time fish have been used practically on a small scale. . . . In the Southern States for many years intelligent persons here and there have introduced fish into water tanks for this purpose.

Quite a number of successful experiments in the control of malaria in towns and other centers of population by anti-mosquito measures have been made and reported. The measures employed in these experiments were the usual ones of drainage, filling, edging of pond, stream and ditch banks, removing heavy vegetation and debris, the training of ditch and stream beds, and oiling. While a scheme comprising these measures of mosquito control is applicable to urban communities and centers of population at a non-prohibitive cost, such is not the case when we seek to apply them to rural sections where conditions are very different in several aspects, i.e.:

(1) In rural sections we have a sparse population, often unevenly distributed, where the area controlled per individual is large, in consequence of which the per capita cost of mosquito control, if we confine ourselves to the above mentioned measures, is likely to be very high.

(2) Rural communities have no drainage system or means of disposal of storm water such as is commonly found in towns

(3) There is no system of sanitary laws and regulations in rural communities, nor is the official machinery in existence for the enforcement of such laws and regulations.

(4) No easily applicable system of local taxation is provided by law for rural and unincorporated communities, by which funds can be raised to meet the cost of control work.

Realizing the need for more definite information regarding the incidence of malaria in rural communities, and the possibilities of developing cheaper methods of control, the International Health Board, in cooperation with the Mississippi State Board of Health, early in 1918 selected a rural district in Hinds County, Mississippi, in the hill section of the state, where observations and experimental measures of control might be conducted for a period of three years. The author of this article was placed in charge of the experiment. The district selected was in the northern part of Hinds County and comprised territory to the extent of approximately thirty-six square miles. The district seemed to represent average conditions in the hill sections of the great malaria belt of the Southern States as regards distribution of population, agricultural products, and methods of cultivation, climate, rainfall, soil, and drainage, with conditions neither more or less favorable than the average for mosquito production. There were 172 homes in the district housing 830 people, most of whom were engaged in agricultural pursuits. The season of 1918 was given over entirely to observations and the study of conditions in the district, no attempt being made to control mosquito production or in any way to influence the prevalence of malaria.

The Situation Surveyed

The district was mapped as a whole and also individual maps were made of each home and the territory surrounding it for one-quarter of a mile in all directions. On this individual map were located all water deposits which might or were already producing mosquitoes, and these water deposits were kept under careful observation throughout the season, a study being made of the conditions in each which seemed to favor, limit or prevent mosquito production. A census of the entire population was taken, clinical histories of all illness of the people during 1918 and the previous year were secured, blood smears were obtained from a representative number and class of people and examined to establish a blood index, mosquitoes were caught, and larvae collected and hatched for identification. The results of the observations in 1918 were briefly as follows:

The rate per cent of malaria in 1918 among the people living in the district, based upon clinical histories, was 29.14 among the whites and 13.67 among the blacks, a total rate of 17.83 for the entire population. The examination of blood smears gave a parasite index of 6.28 per cent among the whites and 5.89 per cent among the blacks. Out of the thirty-eight people

No. 3. Fish pond, showing spillway with fish guard of 16-gauge wire netting. This shows a fish pond of large size, having a shore line of 720 yards. This pond was owned by a fishing club, and was stocked with black bass, bream, sun perch and the top minnow (Gambusia Affinis). Black bass were added each season to the number of one thousand or more by the fishing club to replace those caught from the pond. It is interesting to note that in spite of the presence of a great number of predacious fish in the pond, the top minnows thrived and increased to such a degree that during the season 1920 we were able to remove four thousand minnows from the pond for stocking purposes without disturbing the complete control of mosquito breeding, which was maintained in the pond by the minnows throughout the three years in which it was [illegible]

No. 4. Stock pond, cleaned and edged, ready for stocking with fish

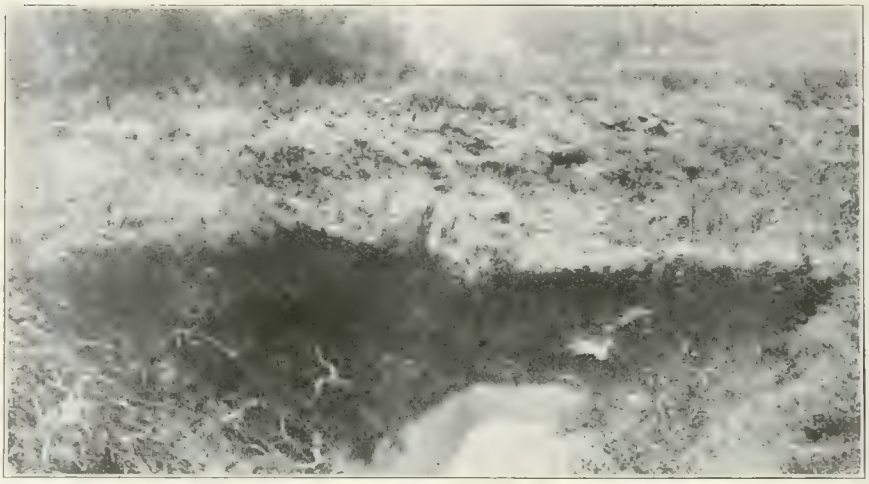
showing some form of the malarial parasite in their blood, thirty were without clinical symptoms. The combination of the positive blood findings and clinical cases of malaria gave a total of 178 cases of malarial infection in a population of 830 people, or a rate per cent of 21.44.

It may be of interest to know that more than one out of every three of the whites had malaria, and approximately one out of every six of the blacks. Blood smears were collected and examined again in the winter of 1918-1919 with the result that a positive rate of 2.09 per cent was found for all races.

Two hundred twenty-eight water deposits were located in the district consisting of creeks, branches, ditches, lakes, ponds, potholes, pools, springs, seepage areas, borrow pits, cattle dipping vats, wells, and cisterns.

Of the 228 water deposits which were kept under observation, 167 were producing malarial mosquitoes (Anopheles) for a part or all of the season of 1918. Many Culex, or common mosquitoes, were hatched in small water deposits near the homes of the people and in artificial containers, such as tubs, rain-barrels, and cans, in which water was allowed to stand. It was mainly from these sources that the mosquitoes came which annoyed the people and caused complaint of the mosquito nuisance. The *Anopheles Punctipennis, Quadrimaculatus,* and *Crucians* were identified as common in the district. In the study of the water deposits of the district, and the conditions which favored, limited or prevented mosquito production, it was early noted that under natural conditions, without our aid or intervention, the indigenous, top feeding minnows which were found in many of the larger water deposits of the district, were maintaining a fair degree of mosquito control in these deposits by feeding upon and destroying the eggs and larvae of the mosquitoes. There were three varieties of the top feeding minnows present in the district (Gambusia Affinis, Fundulus Natalus, and Fundulus Nottii), but only the Gambusia Affinis was present in any great numbers, and it was this fish which was functioning actively as a natural agent of mosquito control.

No. 6. A pond bank having a heavy growth of water grass which must be removed before the top minnow can reach and devour the mosquito larvae.



No. 7. Pot holes are often very prolific breeders of malarial mosquitos, and where at all practicable should be filled or drained and thus permanently eliminated. Where it is not feasible to fill or drain them, it was shown by our experiments that mosquito breeding may be easily controlled in them by introducing the top minnow.

The *Gambusia* is the common top water fish found throughout the hill sections of Mississippi and many other Southern States. Its distribution in the United States, as stated by the United States Bureau of Fisheries, is as follows:

The *Gambusia Affinis* is found in fresh and brackish water from New Jersey to Florida, and in the Mississippi Valley from Illinois to Louisiana, and thence to the regions of Texas and Mexico. It is excessively abundant in the southern part of the area outlined above.

At the beginning of the active malaria season of 1919, with the information obtained in 1918, plans were made for controlling mosquito production. An area consisting of a part of the observation area of 1918, and containing approximately twenty-two square miles, was selected in which the attempt to control mosquito production was to be made. The area contained 142 homes, housing 593 people. The remaining fourteen square miles of the 1918 observation district, containing thirty homes and approximately 237 people, was retained under observation as a control area no measures for mosquito control being instituted. Anti-mosquito measures in the controlled area consisted of drainage and filling, training of stream and ditch channels, clearing away brush, vegetation, and débris, and oiling in emergencies where other measures of control were not applicable. At the same time a program was arranged to increase the number of top minnows and to test them as agents of mosquito control in all classes of water deposits. The heavy precipitation occurring in the period from January to May, 1919, the continuous flooding of the lowlands, and the flooded conditions prevailing in practically all water deposits in the districts greatly delayed field work, and it was not until July 1 that the entire area was under control. Mosquito control was secured by the application of the following measures:

1. Drainage and filling: 25 water deposits were drained, or partly drained, and 4 filled.
2. Removal of débris and obstructions from and the straightening and training of stream channels, ditches, etc.: 9,552 yards of streams and ditches were so treated.
3. Removal of grass, weeds, brush and acquatic vegetation from, and the edging of the banks of ponds, pools, pot holes, etc.: Thirty-six ponds and numerous pools and pot holes, having a total shore line of approximately four thousand yards, were cleaned and edged and kept so throughout the season.

No. 8. Pot hole filled with brush and earth. The brush was used to prevent the earth being washed out during heavy rainfalls

Oiling was used as an emergency measure whenever other measures of control were not immediately applicable. A total of 178⅝ gallons of oil were used during the season of 1919.

(To be continued)

Shoe Fitting Becomes a Science

By SOLOMON STROUSE, M.D., Chicago, Illinois

A FEW DAYS ago a business man told the following story: "I had at least twenty pairs of shoes at home, and could not wear a single pair longer than a week. No one seemed able to give me the proper shoe. Whether they were custom made or bought from stock, I could get no real foot comfort. And not having real foot comfort made me feel out of sorts all over. Finally, a doctor friend advised me to go to a shoe store where they are more interested in properly fitting shoes than in shoe sales, and where all the salesmen have made a special study of feet and shoes. Although naturally skeptical, I did finally try them out, did finally get shoes which fit my feet and give me solid comfort."

This is not an exaggerated statement. Most individuals would be unable to maintain a stock of twenty pairs of shoes, but there are only too many people whose complete stock of one pair represents a stock of misfits. Foot comfort is a rare thing to find. Usually people do not know a properly fitting shoe when they feel it on the foot. As a result many shoe salesmen find it possible to sell shoes which are uncomfortable and which ultimately do harm.

We are prompted to open a discussion of feet and shoes because of the universality of the complaint. Poorly fitted shoes and their relation to the health of a nation have never received the attention the subject deserves—except in war, when it becomes imperative that every effort be made to keep the feet of the soldiers in condition for service. During peace times shoes are bought like ties, without any relation to the individual anatomical peculiarities of the "patient." We use the word patient advisedly, for no prospective buyer of a pair of shoes should be regarded merely as a customer. No two pairs of feet are alike. One man with a six and one-half length has a heel A, an instep B, and a ball C; the next has six and one-half B all around. One man's arch needs a given kind of support, an aid which the next man does not require.

The buyer, of course, knows little about his own feet. The seller *must*, and it is up to the salesman to provide proper fits. Speaking in a general sense, the buyer gets not what he needs, but what there is in stock. This used to hold good even in first class shoe shops, although we believe there is a notably increasing attention to feet and the fundamental principles of shoe fitting on the part of the better shoe merchants.

But why all this fuss? Suppose a shoe does pinch, it is on my foot. There is a logical answer to this question, too. The extent of the damage of poorly fitting shoes is not limited to the feet of the wearer. An undiagnosed flat foot or a weak arch improperly corrected may render an individual tired and uncomfortable, but it does much more than that. He may have pains in his back (he calls 'em kidney pains); he probably is too tired to take the amount of physical exercise his health requires; he becomes neurasthenic; he resorts to medical care; his whole family suffers. We know of one man who suffered for years before his physician found the foot trouble which alone was responsible for his varied assortment of ailments. Another victim came to our office a few years ago scared beyond description because he had "fainted" in a theater aisle while escorting a charming lady. He had not fainted; his feet had merely given way. Proper attention to his shoes made him so comfortable and happy that he married the lady.

Instances could be cited to show the relation between fatigue phenomena and the feet, between "neurasthenia" and weak arches. It is only necessary to call attention to them. The several phases of this subject will be treated from many angles in a series of articles to be presented by The Nation's Health in the next few months. Our main proposition is quite simple. Many individuals suffer from foot ailments which are either caused or aggravated by the improper fitting of shoes. The arousing of public opinion against the evils of the old time tight corset certainly carried as a result an improvement in the general health of the women of the Nation. We wish to arouse public opinion to a realization of the need of better fitting shoes, to make them demand the application of a little science to the art of selling shoes. We hope to prove that better shoes mean better health. If the public comes to demand more fit and less style, the manufacturers must supply the demand. We believe they are only too willing.

Yonkers, New York, wastes 133,000,000 gallons of water yearly, a recent survey of the municipal water main system shows. The loss in money is estimated at over $13,000. Recommendations, which if followed, will avoid future waste, have been made to the municipal government. Better installations will be supplemented by service bulletins to sell the idea of water economy to the citizenry.

Recent Child Welfare Expositions in France

We Can Visualize a Nation's Future by Its Care of the Child

By THEODORE C. MERRILL, M.D., Medical Director, Department du Nord, Paris, France

IN THE spring of 1918, refugees, tuberculosis, and child welfare problems became acute throughout the warring nations. War-time activities of the ameliorating organizations were at their height. So far as the American Red Cross was concerned, its funds at this time permitted work on a scale which, since the armistice, has been gradually shrinking, notwithstanding several periods of augmentation is response to critical situations needing relief.

Among special efforts of this period, the American Red Cross organized child welfare exhibits at several cities in the south of France. These were complete, successful, and applied a vigorous stimulus for home creation of child welfare agencies. These new (French) agencies took up their work, the acute war situation passed and the expositions, ceasing to operate, were regarded as closed incidents in philanthropic history.

A Population Problem

Even before the war, depopulation in France had become alarming. After the war, it forced itself insistently upon the attention of the entire French public. France was facing the possibility of extinction. As if in response to a natural urge, practical manifestations of a strong national sentiment for repopulation began to appear. These manifestations were linked with past experience.

The people of the south of France remembered the American child welfare expositions. Some of them were closely associated with reviving industrial centers in the devastated region. Moreover, it was from the wasted cities in the north of France that many hapless refugees, expelled from the front, had drifted to shelter in the South; and these refugees, gradually returning to their homes, carried with them memories of the American ameliorating enterprises with which they had been in contact during the days of their exile.

The French reaction, beginning but now to be effective, takes the form of new life to open-air schools; honors large families; promotes playgrounds; favors milk stations, prenatal clinics, maternity hospitals, better obstetric care, physical education, breast-feeding, provision for working mothers, visiting and school nurses, preventoriums, school canteens, school medical inspection, model dairies, personal and public hygiene —in short, stresses every interest of the prospective and actual mother, of the infant, child, and adolescent.

La propreté sauvegarde l'enfant.
Se servir de biberons dépourvus d'angles trop aigus et qui soient faciles à nettoyer à l'eau chaude.
Conserver les tétines dans de l'eau bouillie lorsqu'on ne s'en sert pas
Ne jamais donner au bébé de sirops calmants ou spécialités pharmaceutiques !!
Pourquoi droguer votre bébé ?

This French poster will make friends in America.

In this impulse, American cooperation is not forgotten. The child welfare expositions of 1918 now prove to be the genesis of similar assistance, thus recalled to life and started over again, at French request, in the industrial town of Roubaix, of the Department of the Nord. The American Red Cross was the organization to which the French naturally looked for a renewal of former expositions.

The revival seems chiefly to interest the devastated region. Roubaix, Tourcoing and Lille were the first of the recent objectives, the periods being April 24-30, for Roubaix; May 4-10, for Tourcoing; and May 15-30, for Lille. The exposition at Paris, held from June 15 to July 25, was another; the cities of Cambrai, Dousi and Soissons, again call the exposition to the north.

The New Baby Show

The present set-up makes freer use of really artistic material than do expositions ordinarily seen in America. The general tone has also to consider French, rather than American, temperament and point of view. Ideas and material used at the former expositions have been utilized. French organizations have cooperated. Assistance has been rendered by the Ecole de Puériculture at Paris, the Florence Nightingale School of Nursing at Bordeaux, League of Red Cross Societies, Rockefeller Tuberculosis Commission, American Committee for the Devastated Regions, other agencies and many individuals.

The material is active or living, and passive or static. Living features provide the stronger impression and mark the difference between European and American conceptions. Living departments of the present expositions consist of the weighing and measuring of children; preparation and care of milk, nursing bottles and nipples; specimen diets, demonstration of correct foods and principles of nutrition; clothing for infants, children and prospective mothers; dental and oral hygiene; weighing and bathing of babies; typical kindergartens and playgrounds; movies and lantern slides; a Guignol or marionette show, dear to the French child and combining instruction with amusement; music; health talks by local physicians; baby contests, based on physical excellence; post-card essay competitions. Parenthetically, it may be stated that a screened couch and simple restoratives are indispensable for meeting little emergencies that are sure to develop in the course of any program contemplating the massing of crowds.

Static exhibits consist of thirty posters covering maternal, infant, and child hygiene and painted by Poulbot, the well known child-life artist of France; twenty-six posters by Miss Upjohn, which were obtained from the American Red Cross Muse-

The interior of the exposition hall, the Palais Rameau, at Lille.

um at Washington; a glass-paneled house, or room, about twenty feet square, for the weighing and bathing of infants and provided with beautiful panels painted by Madame Dick Dumas; miscellaneous posters and charts showing birth and death rates, infant mortality rates and causes, standards for height, weight, and infant feeding; printed matter for use at the booths; an artistic façade or entrance piece a simple cloth velum; literature for distribution and posters for billing the town.

Depends on the Budget

Everything starts with the budget. For the expositions shown at Roubaix, Tourcoing, and Lille, the sum of ten thousand dollars were provided. It was intended to cover the preparation of material, transportation, and hotel bills, but did not cover the salaries of all the personnel. The latter numbered from fifteen to eighteen and an additional allowance of at least two thousand dollars should be counted in. Fifteen thousand dollars would about cover the expense from the opening labors in February to the close at Lille on May 30. It must be remembered that the exposition sites, lighting, water, and a good deal of labor were provided by the municipalities. Beautifully artistic material was painted at special concessions on account of the end in view; organizations and individuals contributed valuable services free of charge

The practical demonstrations were exceedingly popular. Many applicants for babies baths had to be turned away and the audience at bathing hours was always large and keenly interested. The crowd about the dentist's stand threatened to swamp the workers and often required the special attention of a gendarme. Milk, diet, and clothing booths started free discussion; differences between French and American ideas as to coffee, wine, constricting garments, and the use of pacifiers occasionally created acute situations.

Weighing and measuring were done according to American figures, reduced to the metric system. The sitting height was recorded, after the pelidisi formula developed, with other inventions, by Dr. Pirquet, of Vienna. These novel principles are expounded in his "System of Nutrition" and have proved very useful to the American Relief Administration in their extensive child feeding operations in Europe.

For the kindergarten (jardin d'enfant), cinema (movies), Guignol and playgrounds, special reservation was made for morning attendance by the school children, who came in orderly groups accompanied by their teachers. Baby contests were arranged in three classes—0 to 6 months, 6 to 12 months, and 12 to 18 months. At Lille an extra class for twins was added, the entries being twenty-six. Money for the prizes was offered by the American Red Cross, the French citizens adding generous contributions of their own. Prizes consisted of twenty, fifteen and ten francs each. and a large number of diplomas were issued. Registration for the contests was ample and enthusiastic and service by the French physicians very thorough. The necessary examinations were painstakingly made, regardless of long hours and fatigue. Health talks were closely listened to; music proved almost a sine qua non, itself an injection of vitality.

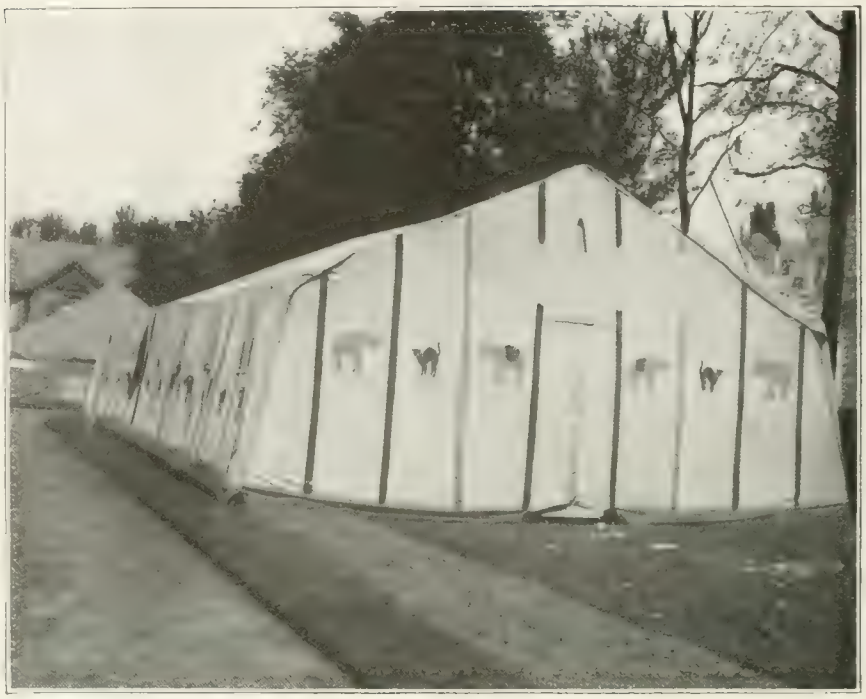
Statistics, admittedly the dryest

The children eager to attend the kindergarten

part of an exhibit, were of special interest here because of the painful evidence of France's decline in the birth rate before and during the war and the ray of encouragement shown in an increase as revealed by the figures for 1919 and the first half of 1920. War and influenza effects were carefully noted. Many persons returned again and again to the exposition to study the charts and posters. The Poulbot paintings, full of French charm, were most attractive. The legends for these were prepared by a committee of well known physicians and social workers, carefully translated into French and they constitute a library in themselves. The Dumas and Upjohn decorations were also much admired.

The vellum was made of simple white cloth, on which were painted animals and stars. A twelve-inch border was obtained by ordinary laundry bluing. The vellum was very useful, a great addition to the rather bare and lofty hall occupied at Rouhaix.

Flooring was accepted as it occurred. At Roubaix, it consisted of bricks laid rather irregularly in earth. At Tourcoing, it was a pavement of smooth stone. At Lille it was of sand and earth, frequent watering being necessary. At Paris, the American portion of the exposition was under canvas and floored by grass. Dry sand or earth cause too much earth. Sawdust should never be used, as it is easily displaceable and adds a serious fire menace. Tanbark was not available.



The animals on this marionette show tent were put there with stencils.

Entering upon its work at the solicitation of the French, the exposition naturally found a cordial welcome and full cooperation at their hands. At the outset, the position of the exposition was made clear to municipal and medical authorities and thus placed under official sanction and guaranty. Official indorsement of this kind is indispensable, not only in foreign countries, but in America as well. Public authorities and the medical fraternity are entitled to consideration and respect equally at Stringtown on the pike as at Chalons on the Marne.

Next after official cooperation came that of the French organizations, or Oeuvres, as they are appropriately called. Among these were the French Red Cross, tuberculosis dispensaries, societies for honoring large families, milk stations (Gouttes de Lait), consultations de nourrissons, soup kitchens, gymnastic clubs, and other welfare associations. At Roubaix and Tourcoing, these organizations occupied about half the space within the main hall.

At these two places, the exposition was the principal attraction and ran itself. At Lille and Paris, it was one feature among many, the whole being under French direction and conducted according to French ideas.

The interior of the glass bathroom, all set for action.

Practical Conclusions

(1) Support by public and medical authorities, cooperation with local organizations, and care to keep free of religious and political differences are indispensable conditions.

(2) A wealth of material is desirable. Health topics are thus presented from many angles and many mentalities and temperaments will be appealed to.

(3) Objective demonstrations are especially important. They develop the most interest, make the strongest impression and leave lasting memories if they are really excellent.

(4) Static material should be carefully prepared. Clearly drawn charts

and diagrams and artistic decoration applied to panels, stands, and literature are second only to the living portions of the exhibit. Opinions may differ as to arrangement. However, it is safer to group the material so that the hygienic teaching may be concentrated rather than to arrange posters and legends indiscriminately. Confused and purposeless placing should not be permitted. Sometimes a little elasticity for the sake of artistic unity is permissible, but such elasticity should not be abused.

(5) Stands or booths will generally correspond to those whose work is here described. See "The New Baby Show," active material. A tuberculosis stand should not be omitted; at least there should be special tuberculosis posters and literature. Booklets and other tuberculosis teaching were abundantly provided at this exposition, but there was no demonstration-booth.

(6) If the budget permits, it may sometimes be feasible to have eye, ear, nose, and throat examination of children, solely for giving advice. Local physicians are likely to be very sensitive if exposition work encroaches on treatment. Anything that may lead to misunderstanding should be avoided. For instance, at Roubaix and Tourcoing the stand for weighing and measuring was labelled "Practical Consultations." The dental stand bore the legend "Dentist." At Lille the physicians requested that these wordings be changed respectively to "Weighing and Measuring" and "Hygiene of the Mouth." Again, diagnosis should generally be avoided. It is usually impracticable to make examinations thoroughly enough to be sure of all the diagnostic conditions, and imperfect examinations or mistakes lead to criticism by local doctors. A diagnosis differing from that made by the attending physician invites trouble. Should the condition of a subject indicate further diagnosis or treatment, he should be referred to his family physician or to a dispensary, clinic, milk station, etc.

'Most ready to open'

The exterior of the "bath room," with panel by Madame Dumas.

(7) Projection should receive special attention. The cinema, or movie, has been so perfected that poor illumination and faulty film showing will detract much from the effect desired.

(8) For foreign effort, it is desirable that at least some of the American personnel should be able to use, in a creditable manner, the language of the country where the exposition is held. Without this resource, one must depend on interpreters and other foreign people for meeting officials, paying bills, talking to the public, presenting speakers to the audiences and representing America in a social and diplomatic capacity. Much of the force of an American exhibit depends on the fact that it is American and that it represents a powerful and benevolent American organization. For this reason, it is regrettable when capable representation must pass to other than American hands and when American members of the exposition must remain dumb and helpless in the presence of foreign officials, prelates, people of position, and the public at large. I am strongly against permitting the director of an American exposition in a foreign country to be other than an American. It is poor policy to allow any but a most exceptional foreigner to undertake to represent American ideas and ideals. The greatest care should be taken in securing foreign representatives to see that their character and position are really what these qualities are pretended to be. Americans do not understand the highly specialized brands of impostors that are floating about Europe, and a few simple data, such as place and date of birth, address, military service with number of regiment and satisfactory references, should invariably be secured and placed on file. Organizations may be saved much humiliation and sometimes money by observing such precautions.

(9) The Paris exposition has proved very suggestive. In the first place, it must be judged somewhat differently from the expositions held in smaller places. Two great differences are, first, that the Paris public sees so many expositions that attendance may not be proportionally large when compared with the visitors attending in less important towns; second, although the attendance may seem small, it may include persons from many parts of the country as well as visitors from foreign lands, so that the exposition's influence may spread widely. Apart from these two considerations, however, four in-

fluences were against full success at the Paris show:

(a) *Season.*—The exhibit began just as the summer heat was making itself, and continued through a long and very uncomfortable period. Many of the Paris citizens were absent from the city, which fact lessened attendance considerably.

(b) *Location.*—The exposition was placed in the Jardin d'Acclimatation, in the Bois de Boulogne, and was eccentric not only to the city as a whole, but especially so with reference to the people who should be most benefited. People of the poorer and more populous quarters of Paris could visit the exposition and take their children only by paying for transportation and, in any event, incurring expense and fatigue.

(c) The public was admitted free. Exaction of an entrance fee makes against conveying the ideas of a welfare exposition to the people who need such service most.

(d) An unfortunate commercial element was present. The most accessible and conspicuous sites were assigned to patent foods, soap, and talcum, furniture, clothing, household articles, etc. The welfare organizations were thus deprived of the best places. Lessened publicity was another result, since publicity agencies are not enthusiastic about supplying free advertising for commercial firms.

The lessons thus suggested by the Paris exposition are of great value. Present comment is designed to be constructive. This article will probably be read by French physicians and socially interested people, and the French open-mindedness will be perfectly willing to consider the American viewpoint and translate it into Gallic terms. May Americans reciprocate this tolerance! I cannot close without reference to the organizing ability of the French physicians, and others, who guided the exposition and contributed great labor for its success. Notably is this true of the baby contests, which were planned and managed according to French methods. Technical ability, expedition, thoroughness, and disregard of self characterized this work. It is a labor of duty, as well as of affection, to record this tribute. It is no less a privilege and honor to make, before the American public of physicians, teachers, and social benefactors an acknowledgement of the kindnesses granted, freely and delightfully, by the officials, organizations and individuals who were our hosts.

Preventive Measures Effective in Cardiac Disease

It Is Not Enough to Know the Remedy. Correctives Must Be Readily Available.

By LOUIS I. HARRIS, M.D., Dr.P.H., Director, Bureau of Preventable Diseases, Department of Health, New York City

IT HAS become fashionable for those interested in public health to talk of education as if it were a cure-all, notwithstanding the fact that experience has shown that educational methods are slow in producing results and that the general apathy and indifference to public health instruction even on the part of the relatively intelligent, is still colossal. Moreover, there are many who know full well the dangers inherent in living in overcrowded quarters which invite infection, and who know also about the hazards to health from excessive physical strain or exposure to industrial poisons and various toxic agents, as well as the dangers in certain other social and physical factors which are conducive to, or immediately provocative of organic cardiac defects. The young housewife might possibly know that the number of fatalities annually among housewives from organic heart disease is very considerable and yet the needs of the family and the economic handicap under which she lives may compel her to do comparatively hard labor in the home. The farmer, the blacksmith, the steel mill worker, the laborer, and many other occupational groups might conceivably, under instruction, become thoroughly conversant with the dangers of cardiac disease and yet find themselves only partially able to guard themselves against the dangers which may lurk in their industrial or social environment.

The incompetent heart must not be allowed to work beyond its power of recuperation and the limits of safety need to be determined for each affected individual.

The intelligent and economically independent may be able to avoid the perils of overwork, anxiety, or other strain, but public protection must be afforded the socially unfortunate in order to improve surroundings and regulate habits which operate as unwholesome factors. In both cases systematic supervision by fully organized clinical units is the minimum essential.

Something more than mere knowledge is needed. Nevertheless, education of the great masses of people must of course be conducted with energy and consistency. It must be education of a character that shows in terms of dollars and cents that it pays to safeguard the human machine. Even at the risk of being accused of paternalism, public health officers should, by reason of their experience, preach not only good health *per se*, but should become the staunchest and most fearless teachers of the doctrine that human life at any and every age has value not only in terms of dollars and cents, but has a sanctity and individual claim for regard which is greater than any money value. Education that is not merely academic and physiological, but which is inspired by a spiritual conception and a reverence for human life, should make every public health officer the unrelenting critic and opponent of prevailing conditions in the social and economic system which contribute toward a preventable and merciless waste of human life. Our educational campaign has been too much of the Simon-pure variety, based exclusively on considerations of physiology and dollars and cents. One may make bold to say that education animated by a spiritual ideal is not the dream of a visionary, but should become the pattern adopted by every public health officer. With proper housing conditions that prevent too intimate contact and exposure to in-

fection, with means for an adequate dietary, with sufficient means also to enable one to punctuate work with a vacation at necessary intervals, a great deal could be done to prevent organic cardiac defects or to hold in check the progress of cardiac disease already established. However, these are objectives which will have to be attained by other means and must be expected to develop in the slow evolution of things.

The point that is here expressly made is that one should not rest too confidently on the idea that education by itself will remedy conditions. It may measurably influence personal conduct, personal habits, and will be of some aid in improving general conditions. It is also desired to emphasize that education in a dispassionate, academic fashion on matters of public health is not sufficient; that public health must be treated as one of the humanities and as such it should be inspired by a broad social vision, and those employing educational methods should not hesitate to give testimony as to the relation that exists between economic and social conditions and the prevention of cardiac and other preventable diseases.

The relation that has long since been established between syphilis and, in rarer instances, between gonorrhea and the subsequent development of organic heart disease, should be brought home to the young especially, as well as those who are about to marry. In our educational campaign, special emphasis should be given not only to the prevention of exposure to infection but also to the necessity of prompt and long-continued medical observation and treatment for those suffering from syphilis.

In adult life, as in childhood, focal infections play a most important rôle in the etiology of cardiac diseases. This should be made known in the educational propaganda in simple terms, through factory talks, literature, etc.

The avoidance of excesses in diet and in the sexual life, and the avoidance of habits which are conducive to undernourishment and fatigue, should also be made part of the message of warning to be carried through the educational campaign in newspapers, lectures, and literature.

Publication notes in newspapers, and, if necessary, paid advertisements in newspapers, magazines, and the other familiar forms of educational publicity, should be utilized at frequent intervals to force home upon the average apathetic and indifferent person the dramatic features which have publicity value and which portray the causes, incidence, mortality rate, and the methods of prevention of cardiac diseases.

Periodic Medical Examination

While much headway has been made in persuading people to submit to periodic medical examination, a great deal more remains to be done even in those communities that have made progress along these lines. Those having ample means should be made to feel it a pressing duty to be examined by their private physicians at regular intervals, and that it is a menace to life to omit such procedure. Public health officials should so spread their educational propaganda that they will teach people to look upon their family practitioner not merely as one who gives aid in times of grave emergency or when sickness has already manifested itself, but who, by periodic examination of his patients, will be enabled to detect the beginnings of cardiac and other preventable disease in time to influence the patient's future, so far as possible, by proper counsel and treatment. Periodic examinations of persons in all age groups who cannot afford to pay for private "health" examinations should be the most conspicuous preventive function of health departments. These should be conducted at frequent and regular intervals, in the various dispensaries and clinics of the general hospitals and of the health departments which at the present time ignore the necessity of examining persons who have no specific complaints.

Periodic health examination clinics should be amply provided, where other means are lacking, by the establishment of additional Health Department Clinics in various centers of population or by the traveling clinic. The Health Department of New York City has not yet attempted to organize a traveling clinic for the detection of cardiac diseases, tuberculosis, and other preventable diseases. Efforts should be made without delay to bring home to the people of the city as a whole and to the budget-making officers of the city, that it is in the interest of industrial, community, and individual economy, and in the interest of humanity itself, to establish the necessary number of stationary and traveling clinics, and to provide adequate personnel for the purpose. It should be brought home to all citizens, however distantly related they may think themselves to this problem, that it is good business and that it pays to provide ample means for the periodic examination of individuals. In connection with such periodic examinations for children of pre-school age, as well as for school children, for adolescents, and for adults, the various official and non-official dispensaries and clinics should have it impressed upon them, no matter what their special field of study or interest may be, to note carefully in their routine examination any other preventable disease which they may be able to detect, and to refer persons for the care and correction of physical defects to private physicians or to proper institutions, and to have nurses to follow up and stimulate those who are found to be menaced by the beginnings of cardiac or other preventable diseases, so that they may not neglect to secure timely care. The personnel, number, and scope of work of the clinics maintained by the Bureau of Preventable Diseases in the City of New York is so limited as to be utterly incapable of expansion so as to justify the claim that the Health Department is really and efficiently *preventing* the "preventable" diseases. The public must be persuaded to support more clinics and larger personnel, and to make possible the expansion of our preventable disease work so that we will not be limited as at present largely to tuberculosis. The statistical citations previously given show that as much is needed for the prevention of cardiac disease as for tuberculosis. In the last thirty years, the mortality from tuberculosis has been reduced very considerably as a result of improved tenement house laws, improved economic conditions, and of anti-tuberculosis work, while the mortality from cardiac diseases has been increasing, or at least remaining stationary and causing quite as many deaths as are registered from tuberculosis.

Broad Preventive Work

Although a digression, it is timely to call attention to the obstacles in the way of broadening the scope of the preventive medical works of the clinics of the Bureau of Preventable Diseases which now must unfortunnately be confined to tuberculosis work.

This is the era of the promoter. There is hardly a cause or enterprise that can hope to attract and hold public interest without the aid of the promoter or propagandist. This is equally true whether the cause has for its object the alleviation of starvation, the prevention of disease and death, or whether it be an ordinary commercial scheme. The quickening

of the social conscience of a fairly large fraction of humanity in the past several decades, has given opportunity for the development of a group of persons who have a special aptitude for attracting attention to a particular cause in which they may have a temporary or even an abiding and sincere interest. The absorption of the great mass of people in the struggle for existence, in pursuit of wealth, or in shaping a career for themselves, or in other purely personal interests, have made the employment of publicity and promotion devices necessary. The promoters and their appeals have so multiplied, and the high-salaried advocates of schemes for salvation have so frequently fallen under suspicion, that it has become indeed most difficult to arouse interest in causes that may have great merit. This confusion of appeals has unfortunately frequently given the public an excuse for indifference to social needs that are of paramount importance. What is still worse, the pleaders and promoters of public health measures have, like the rest, developed interests that are so narrow and specialized that they have jostled and crowded and trampled upon each other, figuratively of course, in their efforts to reach their respective goals. The public health officer whose functions and interests are comprehensive and of wide scope is prodded and coerced by each of these special pleaders, and he is threatened, if he should make any attempt to link up and solidify the activities in the respective fields of public health work so as to present a solid and unbroken line for attack and defense against the various preventable diseases. The promoters of special movements in public health are frequently as jealous as lovers. The price of their friendship is frequently nothing less than whole-souled absorption in their special field of work.

All hospitals or institutions which are in part or in whole subsidized by the government should be required to render service in the correction of physical defects in individuals found to be affected with conditions which predispose to, or excite, cardiac or other preventable diseases.

Protect Adolescent Health

Much has already been said that applies to the protection of adolescents, but attention should be called to the need of giving special study to this age group. It is during this period that vital changes are being effected in the human organism. Not only is this a period when tuberculosis, if latent, is very likely to light up, but disturbances of thyroid function in girls in particular, and other biological changes make it necessary to prevent any addition of mental or physical strain to those who show any tendency toward departure from the normal, or an incapacity to bear such strains as even normal children can with safety endure. The high school curricula should be of such character as to allow for proper education along health lines and for the prevention of any undue physical or mental strain.

For those of adolescent years who are about to enter industry there should be organized some method of vocational guidance and placement that will prevent the entrance into unfavorable industries or occupations for those having cardiac defects as well as other physical and mental defects. Industry as a whole, as well as the community and the individual, would benefit by some official and expert direction and placing of those seeking employment.

Convalescent Care

Just as it has been found economically necessary and wise to establish and maintain hospitals for the care of acute illnesses, and sanatoria for the care of the tuberculous, so there ought to be established sanatoria and convalescent homes for those recovering from infections or other diseases which predispose to cardiac disease, and for those who are recovering from acute cardiac disease or cardiac breakdown, where the disease is already established. Many cases that lack proper medical and nursing care following acute disease, or during a period of lost compensation, are aggravated and given a downward impetus because of the lack of such care.

Workshops for Cardiacs

Many cardiac disease patients are under compulsion to be self-supporting, and it is desirable, so far as possible, that they should have some useful occupation. The studies that were made during the war in connection with reconstructive work should be carried forward by an official body in cooperation with medical representatives, to determine with even greater definiteness than has already been done, the various types of work which may be suitable for those suffering from various kinds and degrees of cardiac disease. Official machinery may be established within the employment department of the State Industrial Commission and of similar bodies to give preference for employment in suitable kinds of work to those having cardiac disease, and the effects of such work ought to be controlled not only by thorough and sufficient factory inspection to insure proper industrial environmental conditions, but it ought to be checked up by industrial or health department physicians, and by the dispensaries and hospitals under the control of private institutions or of the Department of Health.

A Joint Responsibility

The cooperation of merchants and factory owners ought to be secured to this end, by their representation on the employment agency boards, as well as on the medical boards, the latter being requested to give expert advice with reference to the conditions of employment of cardiac patients. Those forms of labor which are suitable for cardiac patients and which are contracted for by the city government ought to be conducted in workshops maintained by the city for the employment of cardiac patients under proper medical supervision. The various institutions and offices of the city government requiring certain kinds of supplies or forms of work, could, so far as practicable, have such services performed by cardiac patients working for the city under the supervision and direction of its medical experts.

Encouragement should be given to the establishment of workshops for cardiac disease cases by private organizations, so that work of a suitable character done under proper medical supervision, could be performed by those having cardiac defects. This has been demonstrated as being practical and of value in the vocational reconstruction of tuberculous individuals.

While the sentiment against permitting industrial work to be done at home has been very strong of late, encouragement should, however, be given to the establishment by private agencies or organizations of home work of suitable type to be done by cardiac patients who are confined to the home by nature of their physical defect. Such work should likewise be done under proper medical supervision and control.

There are many workers employed in establishments where the humidity, as in paper making, is in marked excess; or, where the workers have to stand in puddles of water, as in laundries; or, where they are employed in an environment in which the temperature is extremely low, as in stor-

age houses; or, where as in steel mills and in numerous other employments, the heat is most intense. All of these workers, as well as those who are exposed to severe muscular strains or to other factors conducive to marked fatigue, as well as those who are exposed to a variety of toxic chemicals, gases, vapors or fumes must be adequately protected, so as to prevent the development of serious cardiac defects or other serious preventable diseases. Time will not permit of the enumeration of the thousands of workers who are daily exposed to lead, mercury, and arsenic poisoning, to instance but a very few of the many toxic agents which may cause a primary or secondary damage to the heart and vascular system. Factory medical inspection of the most thorough kind which will reach into every factory and industrial establishment, and which will appraise the harmfulness of the various industrial factors in their effects upon the heart and other parts of the body, is needed. From such inspections there should follow the formulation of standards and the definite prescription of protective devices which will serve to give the proper degree of temperature and humidity, and which will eliminate needless exposure to toxic agents and dusts, and eliminate the various factors which strain the muscular system and tend to produce cardiac or other preventable diseases. The provision of adequate medical care for factory employees is absolutely essential to safeguard their health, and the examinations in factories should be of the same character as those in the various preventive clinics and dispensaries which have already been outlined, for the purpose of making periodic medical examinations to discover preventable cardiac and other diseases, and to follow up such persons until they have been persuaded to place themselves under proper medical or surgical care.

Short Day and Rest Periods

The short work day should be encouraged on public health grounds wherever severe muscular exertion or other factors producing marked fatigue may be found in the industrial environment. Also, frequent rest periods should be advocated by the public health authorities under similar conditions, because wherever they have been tried, they have been found to increase efficiency, conserve health, and materially reduce the frequency of illness, accidents, and absenteeism.

One rarely encounters the opposition that was formerly voiced to the granting of vacations to employees. Such vacations may be counted as of immediate tonic value in preventing or correcting the effects of fatigue and over-exertion and of physical and mental strain, which play such a vital part in the development of cardiac affections. Education here should be valuable, not only to persuade factory owners to grant vacations so as to permit recuperation from physical or mental strains which may be conducive to cardiac and other defects, but they should also aim to instruct those obtaining such vacations how properly to utilize them, and so to conduct themselves as to derive a maximum of benefit from them.

Mind and Physiology

We have learned much about the reaction of mental strain, worry, rush, and bustle, and unrestrained zeal and ambition, in their reaction upon the glandular structures currently described as the "endocrine bodies," and the far reaching effects which they produce directly or indirectly upon the vascular system and upon the heart. Mental strain and worry among those in whom cardiac defects are already established, has been recognized by every clinician as having a tendency to produce serious aggravation of the patient's physical condition. In view of the effects of such mental strain in predisposing to the development of secondary cardiac damage, and in view of the pernicious effects which such mental strains exert in cases where heart diseases already exists, it is extremely important to carry a special message of warning to be imparted quite early in life, especially to those whose family history gives an indication of a tendency toward development of diseases of the heart and of the circulatory system.

Serve Cardiac Housewives

It is suggested that in view of the fact that a fairly high mortality has been found to exist among housewives at a fairly early age group, and in view of the fact that a relatively large percentage of these housewives have either acquired such cardiac diseases in childhood following infectious disease, focal infection, or other causes, or have developed them as the result of exposure to industrial conditions, or the strain of child-bearing, it is extremely important that the pressing and inescapable burdens of housekeeping and caring for the families be lightened by private organizations so far as possible. This can be done by sending into the homes of housewives suffering from cardiac disease, paid day-helpers, cleaners, or special domestics to give part time or full time service in such homes, so as to relieve such housewives of the necessity of overtaxing their reserve capacity by scrubbing, washing or other strenous labors. In time of need there should also be not merely bedside nursing service, but a nurse's assistant or "practical nurse" who should give continual bedside care and such attention to household duties as may be needed during the time the housewife is suffering from any intercurrent illness or loss of cardiac compensation.

Public Health Institutes Held in Twenty-one Cities

A series of one week public health institutes to be held in twenty-one principal cities over the country and extending over the first five months of 1922 will be given by the United States Public Health Service in cooperation with state and city departments of health and related health organizations. With the exception of the Chicago and Pittsburgh institutes, which are devoted exclusively to a consideration of venereal disease problems, the institutes will include lectures on tuberculosis, child hygiene, nutrition, communicable and non-communicable diseases, industrial hygiene, mental hygiene, sanitary engineering, medical social work and administrative problems. Visits to clinics, hospitals and health centers have also been arranged. At approximately eight institutes special conferences for women not professionally engaged in public health work will be held under the direction of Dr. Rachelle Yarros.

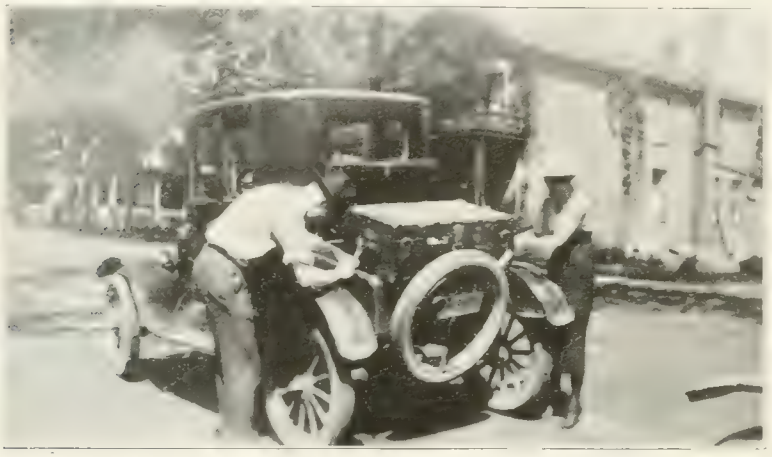
The institutes are open to health officers, physicians, teachers of hygiene, nurses, social workers, and members of various health organizations. No tuition fee is charged. The faculty is comprised of leading health workers distinguished in their respective fields, supplemented by staffs of health departments, medical schools and local health agencies.

Institutes have been scheduled for New Orleans; Columbia, S. C.; Dallas; Birmingham; Memphis; Louisville; Indianapolis; Pittsburgh; Jacksonville; Detroit; Chicago; Minneapolis; Hartford; Portland, Ore.; Kansas City, Kans.; Spokane; Newark; Albany; Denver; Washington, D. C.; and Atlanta.

Traveling Chest Clinics in Wisconsin

By T. L. HARRINGTON, M.D., Medical Department, Wisconsin Anti-Tuberculosis Association, Milwaukee, Wis.

IN MARCH, 1919, the Wisconsin Anti-Tuberculosis Association instituted a series of traveling chest clinics in the small communities of the state. Never in the thirteen years of active work of the Association was a more important or far-reaching piece of health work undertaken, than was begun with the first free chest clinic. In these two and one-half years (March, 1919, to September 1, 1921) 186 clinics have been held and a total of 9,088 cases have had careful chest examinations.



Making sure that the clinic trunk will ride safely to the next town.

During the first year of this work, the Wisconsin Anti-Tuberculosis Association bore the entire expense of these clinics. The demand for clinics became so great, and the financial burden became so heavy that it was necessary to divide the expense with local agencies. The Red Cross, the local Anti-Tuberculosis Society, occasionally a woman's club, and, in one or two cases, the city council assumed responsibility for about one-half the expense.

A Real Health Inventory

The examinations, however, are more than chest examinations. The examining physician makes careful inspection of the eyes, nose, teeth, tonsils, examines for evidences of adenoids and goiter, and finishes with a bare chest examination, which includes careful examination of the heart and lungs. Before the examination is begun by the physician, a careful history is taken on a specially prepared blank. This history sheet gives the usual history data, and in addition both the present weight and the normal weight of the patient, together with the temperature and pulse. If the history sheet shows that the patient comes from a family in which there has been an active case of tuberculosis, the question of "contact" or "no contact" is carefully noted. When there has been contact with an active case of tuberculosis, it is important to know the age of the patient at the time of contact and the number of months or years during which the possibility of massive infection continued.

The history sheets with the record of the physicians' examination are made in triplicate and, at the completion of the examination, one copy is given to the patient in order that he may have the record and show it to his physician, one copy is turned over to the public health nurse for follow up work, and the third copy is retained for the files of the Wisconsin Anti-Tuberculosis Association.

When a clinic is to be held in any community one of the social workers of the Association goes into this community a few days before the opening date of the clinic to make all necessary preparation. This includes the securing of a building with a suitable waiting room, room for taking of histories, etc., and a private room for each examining physician. It is customary to use rooms in the Court House, public library, post office, or other public building because the discovery of early cases of tuberculosis is a public function. All the nurses of the community are drafted into service for the clinic days. In addition to the nurses it is usually necessary to secure the aid of several additional volunteer workers who act as history takers at the clinic. The Social Worker, with the assistance of the county or community nurse, digs out from the records of the Health Officer or the County Clerk the names and addresses of all persons who have died of tuberculosis during the past four or five years. The families of such persons, and of all other contacts that can be discovered, are visited and urged to attend the chest clinic. Schools and factories are visited and short talks are given on the early symptoms of tuberculosis and the value of periodic physical examinations.

Reaches the School

The School Nurse is urged to bring for examination all children that are 10 per cent or more underweight. Publicity for the clinic is secured

With traveling bags on the running board and trunk and platform scale in the rear, the clinic is ready for the road.

through the local papers, and through posters and dodgers that are sent into the surrounding rural districts. The result is that on the opening morning of the clinic shortly after eight o'clock, the patients begin to come, and usually continue to come until late at night. The examining physicians, by beginning the examinations promptly at nine o'clock and working over long hours are each able to examine an average of about thirty patients per day.

The results of these examinations are most interesting and instructive. Of the over nine thousand patients examined 18 per cent were found to have tuberculosis in some form, 20 per cent had diseased tonsils, 15 per cent badly decayed teeth, 6.7 per cent had heart disease, and 6.3 per cent had simple goiter. In every case in which disease in any form was discovered, the patient was advised regarding the nature of the trouble and the course of treatment required to afford the best chance for recovery. In most cases in which a positive diagnosis of tuberculosis was made, sanatorium treatment was advised and in many cases before leaving the clinic all arrangements were completed for the patient's entrance into the sanatorium. More than 50 per cent of all patients examined were referred to the family physician for consultation and treatment. Large quantities of health literature have been distributed at each clinic and as this literature is specially prepared to meet the needs of those who come to the clinic, it is certain that great good comes from the custom of supplying each patient with printed information to fit his case.

It is interesting to know that when the clinics were first started an occasional member of the medical profession was disposed to criticise the clinic on the ground that it was an interference with the regular work of the practicing physician in that community. As these men watched the work of the clinic, and as members of the profession visited the clinic and spent considerable time watching the technic of the examiners, the feeling of antagonism changed to a feeling of gratitude for the service that was rendered the community. It is gratifying to know how the profession as a whole has endorsed this advanced step in social medicine. The clinic physicians have been specially trained in chest examination, and have made a special study of tuberculosis. The result is that the general practitioner visiting the clinic has been able to pick up many points in the newer methods of chest diagnosis. It has also been observed that every practitioner in the community in which a clinic has been held found that during the weeks following the clinic a considerable number of patients came to the office, bringing a history sheet which showed that they had been instructed by one of the clinic physicians to go to the family physician or to a specialist for further study or for treatment.

These clinics have grown in popularity as the nature of the service becomes known in the communities. During the last year it has been the rule that from 10 to 25 per cent of those coming for examination were turned away because the numbers are so great that it is usually impossible to make all examinations during the short stay of the clinic. While it is unfortunate that a considerable number of patients who desired a chest examination are turned away without this examination, it has its fortunate side in the fact that those responsible for the clinic in the locality feel the necessity of another clinic in the near future, and in a considerable number of cases a second clinic was scheduled before the clinic workers left the town.

In one corner of the waiting room patients are weighed and temperature and pulse taken.

Volunteer workers are pressed into service in the taking of histories of the patients examined

The Periodic Examination

Another advantage comes from the fact that a number of those who failed to secure an examination, and a number of others whose attention is directed to the value of periodic physical examinations, visit a private physician for such examination. And in the final analysis it will be the medical profession that must meet the problem of discovering the cases of tuberculosis while still most curable.

The story of two patients who were examined at a recent clinic may interest the readers of this article.

The examination includes inspection of the nose and throat as well as the chest.

One was the wife of a farmer who drove some twenty miles to secure an examination at a clinic. She had seen the publicity in the local paper, and as she had not been well since the birth of her last baby, she decided to have an examination. This little woman was the mother of six children, the oldest eleven and the youngest a baby at breast. The examining physician pronounced her an active case of tuberculosis. When she was told that her best and surest chance for recovery was to be found in sanatorium treatment which might require a stay of from one to two years in an institution, she broke down crying, and between her sobs said she could not leave her babies. The physician reasoned with her, telling her that to remain with her children meant sure infection for all of them, and the chances were that one or more of her six children might receive sufficient infection to cause the death of the child. After two or three minutes this little woman wiped away her tears and said: "If that is true, I will go to a sanatorium."

The Will to Health

We have read much of the heroism of our boys who went into the trenches at the Marne, at Chateau Thierry, at Belleau Wood and at other places in France where they faced the withering fire of the trained German soldiers. I doubt if the courage of any of these splendid youths was greater or was more deserving of praise than was the determination of this little mother to leave her six babies for a year or more and go to a sanatorium, not so much to save her own life, but to save her babies from this infection.

The following is an entirely different type of case: A girl, growing into womanhood, was a student in the Normal school in one of the cities in which a chest clinic was held. A brother had died of tuberculosis some four or five years before. For a number of months this girl had been nervous and losing in weight. She was unable to do her required school work. She made up her mind that she had consumption, and yet she dreaded to know the truth. When her examination was finished and the examining physician told her that her lungs were perfectly sound, a sigh of relief escaped her, and an expression of joy spread over her countenance. A great weight had been lifted from this girl's mind, because she found that her worries were without foundation. A little advice from the examining physician permitted this girl to return to her school work in an entirely different mental state, and with the ability to put her mind on her studies. She soon caught up to her class and regained the lost weight. It is sometimes almost as important to assure a patient that there is nothing the matter but worry as it is to point out to another patient the nature and location of a diseased organ that has been causing a gradual decline in health.

Women in Medicine

By Our Special Correspondent

RECENTLY we made a little journey to the haunts frequented in our young medical days. Many places were no longer recognizable: physical and functional changes had made of them entirely different institutions. As we pondered the passage of time, naturally there was the pang of personal regret that such things never were in *our* time. Ye good olde days are passed.

Not the least striking change in all the medical institutions was found in the changed personnel of the places: Women, women everywhere: feminism gone rampant in medicine. Where one woman held sway in ye good olde days, now twenty women are busy pounding typewriters, taking dictation, and interviewing patients. The dispensaries were crowded with social workers. In one large dispensary handling between three hundred fifty and four hundred patients a day, there seemed to be a legion of women, and every one who came directly in contact with the patients was a trained social worker. As the trained social worker these days is apt to be a college graduate as well, it can only be conjectured what results educated feminism may be able to accomplish for medicine! At one big hospital where the majority of social workers are voluntary contributors of their service, the old wooden floors seemed to be just full of women.

In the laboratories the occasional woman student of other times is now an accepted part of the curriculum and a given number of women are accepted in each course. Women research workers are frequent; women interns are not uncommon.

Medicine in this country opened up to women when a woman benefactor to a new school made the admission of women a *sine qua non* of her gift. Since then what strides feminism has made! Yet one reflects that the object of medical education is really to train physicians to heal the sick, to prevent illness. In point of fact in actual life this means not only the practice of a science, it means also conflict, competition. Still the field of women in practice is limited. As most men do not want a woman physician the field of women's practice is automatically shifted to gynecology, obstetrics, and pediatrics, and competition for them is unfair. We do not have statistics of women in practice. We do know that the general impression is that only the minority make good as practitioners. In the laboratory sciences or in clinical research the names of many women figure prominently.

How many women marry and then stop all practice of medicine? We would like to see some statistics covering the whole question of women in medicine. But while waiting for these figures to come in and while speculating on the result, we want every first class school to open its doors to women as to men. The advance of the woman movement is too logical to be resisted. We should open our gates and see what happens.

Royal Air Medical Service Rules

THE Royal Air Medical Service Rules to improve respiratory and circulatory efficiency are formulated by Wing Commander Martin Flack, Royal Air Force Medical Service, in the Milroy lectures recently delivered before the Royal College of Physicians of London, on "Respiratory Efficiency in Relation to Health and Disease." This system of ten exercises he has elaborated for the purpose of producing circulatory and respiratory fitness, the work being based on physiological principles and observations made in the training of fliers. In the performance of these exercises Commander Flack lays stress on the great importance of the contraction of the diaphragm at the initiation of inspiration, protruding the "pit" of the abdomen together with a movement of the lower ribs, full inspiration being obtained by a wave-like movement spreading from the lower ribs to the upper part of the chest, and on no account should the upper part of the chest be expanded first. Expiration is accomplished by the contraction of the muscles of the abdomen and of the lower part of the chest. The exercises are here given:

(1) In bed. (a) Lying flat, inhale to the fullest extent, at the same time raising the hands above the head in a natural "stretching" motion. (b) Exhale to the utmost extent, using the abdominal muscles forcibly to press out as much air as possible from the lungs, at the same time carrying the arms to the sides. Repeat five times.

(2) Using the weight of the bed clothes turned down to the hips as a means of keeping the legs down, raise the body from the hips and bend forward as much as possible, at the same time breathing out forcibly to the fullest extent, then slowly return to the lying posture, inhaling deeply meanwhile. Repeat five times.

(3) (a) Using the bed clothes as before, from the lying position raise the trunk, with the hands by the sides, through an angle of 45 degrees, then twist round the trunk upon the hips, keeping the legs flat and endeavor to make the forehead touch the bed, meanwhile exhaling forcibly as far as possible. (b) By a reverse movement assume the lying position, inhaling deeply meanwhile. Repeat five times to right and left sides.

(4) (a) From the lying position, flat on the bed, with the hands clasped behind the head, raise the legs from the hips, carrying them as far over the head as possible meanwhile. (b) Lower legs slowly to the fullest extent, meanwhile exhaling deeply and forcibly. Repeat five times.

(5) Out of bed. (a) By a "stretching" movement raise the arms slowly and strongly forward and upward, then lower them sideways until they are in line with the shoulders, which are well thrown back, meanwhile inhaling to the fullest extent. Brace up the muscles of the abdomen and all the accessory muscles of inspiration. (b) Keeping the body as upright as possible, carry the arms forward until they overlap and hold sides of trunk; expire meanwhile to the utmost extent, working specially the lower chest and abdominal muscles. When in the position of full expiration brace up all muscles of lower chest and abdominal wall. Repeat five times.

(6) (a) With the feet about 18 inches apart (or other comfortable distance, which may be gradually decreased as proficiency is attained) carry the arms forward, upward and backward, inhaling meanwhile to the fullest extent. (b) Bend trunk forward and full downward, carrying the arms between the legs to touch the ground with the fingers as far as possible behind the feet, meanwhile exhaling to the fullest extent. Repeat five times.

(7) With the feet about eighteen inches apart (this distance may be decreased as proficiency is attained) and arms raised sideways and in line with the shoulders, bend the trunk to the left (right) until the left (right) hand touches the ground, keeping legs straight, meanwhile breathing naturally or holding the breath. Repeat five times to each side

(8) (a) With the feet as above, carry the arms forward, upward and backward, inhaling meanwhile to the fullest extent. (b) Turn and at the same time bend the trunk to the left (right), and touch the ground on the outside of the left (right) fast, expiring meanwhile to the fullest extent. (c) Stretch trunk upward to upright position, inhaling meanwhile to full extent. Repeat five times to each side.

(9) Inhale as fully as possible, then exhale sharply to the fullest extent, and, with the chest and abdominal muscles, alternately forcibly contracting and relaxing. Repeat two or three times.

(10) Stationary running; shadow boxing; shadow skipping; rhythmic balancing exercises; jumping or any other form of exercise preferred by the subject until out of breath.

These exercises take about ten minutes to perform and should be followed by a tepid or cold bath and a brisk rub down. They are particularly useful for those engaged in sedentary occupations and will enable them to engage in open-air exertions without undue fatigue. They are to be especially recommended as requiring no special apparatus.

Records on the Healthiest Year

NINETEEN twenty-one has well earned the distinction of being "the healthiest year" judging from the figures supplied by health departments, life insurance companies, and vital statisticians. New York City showed a decline in the general mortality rate from 12.93 in 1920 to 11.17 per 1,000 in 1921. Infant mortality was reduced from 85 to 81.1 per 1,000 births and the death rate of children under five years from 30.8 to 23.8. Chicago which has advertised itself as the healthiest of the country's large cities reported a death rate slightly under 11 per 1,000, a decrease in about four thousand deaths as compared to 1920.

A report of much significance is that of thirty-seven leading American life insurance companies which transact about 80 per cent of the life insurance business and cover twenty-seven million persons. The figures indicate a reduction in the death rate from 9.80 per 1,000 in 1920 to 8.24 per 1,000 for the first ten months of 1921. A notable decrease in tuberculosis and pneumonia —almost 40 per cent in the latter— and the few fatalities from influenza are mainly responsible for this steady decline. Whereas tuberculosis was responsible for one out of every four deaths ten years ago, it now causes only one in nine deaths.

Not everywhere can this decline be noted. Homicides, suicides and deaths caused by automobile accidents are on the increase, the two former probably due to the stresses of post-war reactions, and the last to individual carelessness and inadequate policing. Cancer, Bright's disease, cerebral hemorrhage and organic diseases of the heart evidence little or no decline according to mortality records.

Gratifying as these records must be to health workers, any relaxation in the present efforts of disease prevention must be assiduously avoided. The low mortality rates which prevailed in this country during and immediately following the war were explained in part by the general prosperity which pervaded the land, accompanied by improved living conditions of every character. A crucial year is 1922, with unemployment at its height and low wages and poverty much more extant than in recent years. Can these handicaps be overcome so as to permit an uninterrupted decline in the mortality rates?

Plague Excluded from the Canal Zone

By Our Latin-America Correspondent

THE geographic position of the Panama Canal is at once its weakness and its strength in its relationship to the international spread of disease. Ships come to it from all parts of the globe; they moor at its docks; they discharge and receive cargo and passengers; they pass through the locks and to some port there to receive cargo and passengers which perchance may contain the living organisms of disease.

The Panama Canal rat-guard. The strap iron reinforcements give it rigidity and hold it perpendicular to the line. The lashing is a permanent part of the guard and the internal half cones make it fit any line accurately. It is easily and quickly applied and light enough to facilitate handling.

The Canal Zone and the terminal cities in the Republic of Panama are not exporters of epidemic disease. They are not infected. With the exception of bubonic plague and the sputum borne infections they have little to fear from the importation of disease. The *Aëdes* index is so low that yellow fever, if introduced in infectious form, could not spread. The hot humid climate is inimical to lice and therefore to typhus. Cholera does not spread greatly in a flyless environment having a good water supply. In fact the health vigilance exercised by the American Government is such that the Panama Canal Zone is safe to itself and the outside world.

Plague though, is an omnipresent danger. It is intrenched in many of the ports having commercial contact with the Panama Canal and the greatest care must therefore be exercised lest the infection be landed on the Isthmus, since plague there would constitute a health hazard to uninfected ports only secondary in importance to the menace it would exercise against the health and prosperity of the Canal itself.

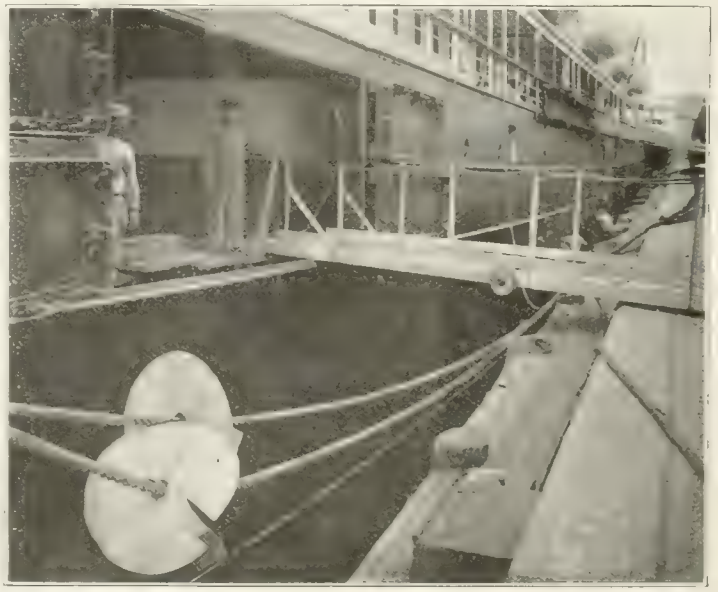
The quarantines at Cristobal and Balboa carry on the work of boarding ships and inspecting passengers, crew and cargo. They also enforce the measures for the prevention of the disembarkation of rodents and the fumigation of vessels. In this way they are, so to speak, lymphatic glands which remove disease from the commercial circulation and destroy it for the protection of the body politic. In this connection the following circular issued by the Panama Canal Zone executive offices, is self explanatory:

Balboa Heights, C. Z.,
October 12, 1921.

To Owners, Masters and Agents of Vessels Arriving At Panama Canal Zone Ports, and All Others Concerned:

Bubonic plague is now prevalent in many of the seaports of the world. It is of the utmost importance to shipping interests that every possible measure be taken to prevent the spread of this disease to other ports and it is imperative that the Panama Canal, an international highway, continue free of plague.

To accomplish this, it is necessary to prevent the migration of rats by ships and to this end the Quarantine Regulations of the Panama Canal will be strictly enforced. Ready compliance with these regulations and hearty cooperation with the quarantine officers will react to the benefit of shipping interests, by the protection of the health of ships' companies and the prevention of expensive and vexatious quarantines, here and elsewhere. The regulations now in force are the minimum compatible with safety and as such must be obeyed in all particulars. Arriving vessels will observe the following regulations un-



Bent rat-guards which do not fit tightly or stand perpendicular to the mooring line offer very little hindrance to the landing or embarkation of rats. At night gangways should be raised or guarded by a watchman. Every means of rodent ingress and egress should be rat-guarded.

der penalty of being placed in quarantine and moved from the docks or fined, or both.

Metal rat guards not less than three feet in diameter will be applied to *all* mooring lines. They must be in good repair and must *fit* the lines *accurately*. They must not overhang or be nearer to the dock than six feet. Ships must be breasted off at least six feet. When exception is made to this rule on account of short cargo booms, the vessel will be immediately breasted off when not working.

Save-alls, catch-alls, hose and all communications with the dock except gangways and properly rat guarded lines, must be disconnected at night and when the ship is not working. Gangways must be raised at night or well lighted and guarded by a watchman.

Vessels should be fumigated frequently for the extermination of rats and other vermin aboard. All arriving vessels, except those not discharging cargo or passengers at Canal ports, which have not been satisfactorily fumigated within three months, will be fumigated. Vessels habitually using Canal ports exclusively (tugs, dredges, barges, etc.) will be fumigated at least every six months.

Respectfully,
M. L. WALKER,
Acting Governor.

To assist ships in complying with this order there is an adequate supply of rat-guards at all docks and these are loaned without charge to vessels lying at docks. A special guard has been developed for this purpose. It is thirty-seven inches in diameter and is constructed of No. 18 galvanized iron. Its rigidity is maintained by six metal straps ⅛-inch by ¾-inch by 24 inches. These turn at right angles at the centre where they are riveted to a half-cone of galvanized sheet iron in order to make the guard fit any line. One of the braces is turned over into a ring for the attachment of a ¼-inch lashing line which is spliced so as to make it a permanent part of the guard. The method of attachment makes the guard always stand perpendicular to the line. The guard is painted red to prevent rusting and to facilitate the rapid inspection of docks to ensure the careful rat-guarding of all connections with the shore.

Ships are breasted off by floats. At Balboa these are held in place by chains which are counterweighed and run over pulleys. This is necessary because of the high tides on the Pacific side. At Cristobal there is only a 10-inch tide so ordinary floats which are moved about by the dock force, as needed, are used.

Unguarded water hose are a constant source of danger. They should be disconnected or rat-guarded when not in use

THE PASSING SHOW

This cartoon, which appeared in "Nautcus" demonstrates the way in which the shipping interests view the anti-rodent campaign.

Ships are fumigated by sulphur and syanid. The results obtained are illustrated by the following table:

S.S. "COLON"

Date fumigated	Rodents recovered
March 21, 1920	181
November 13, 1920	90
June 27, 1921	119
September 21, 1921	65
December 12, 1921	31

S.S. "HUASCO"

June 12, 1919	75
September 12, 1919	76
January 17, 1920	20
May 21, 1920	[illegible]
September 25, 1920	[illegible]
February 21, 1921	14
May 31, 1921	11
September 1, 1921	46

The destruction of rodents and other vermin has proved so satisfactory that owners, agents, and masters of vessels welcome fumigation and frequently request it before the expiration of their certificate. As a matter of fact, the shipping interests have cooperated wholeheartedly with the Quarantine Division in the enforcement of the sanitary regulations quoted above. "Nautcus," a marine journal published in New York, carried in its issue of November 19, 1921, a cartoon which illustrates how good naturedly the anti-rodent operations are regarded. Everyone has a part in the game and laxity is not tolerated anywhere.

THE NATION'S HEALTH

(Continuing MODERN MEDICINE.)

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The Health of Insured Groups

A NEW and powerful incentive for the promotion of health has developed through the growth of insurance among the working people of this country. That incentive is nothing less than the combination of economic and humanitarian forces. Either of these forces by itself is powerful but the two working together should be irresistible.

The insurance carriers measure the risks of disease and death and fix their rates accordingly. In earlier times little account was taken of preventive methods. Applicants were examined, the physically weak were rejected, and the companies assumed the risk on the others. Then some optimistic and far sighted insurance officials saw that it would pay to reduce sickness. Next came the insurance of whole groups of employees without physical examinations. Preventive methods were emphasized by this wholesale insurance, the more so because of the risks of loss from epidemics in a single plant. The insurance company acquired an economic interest in the working conditions, sanitary surroundings, medical and health care of workers. The employer likewise acquired an economic interest because he paid all or the major part of the premium. Each worker acquired an economic interest in his fellow employee's health because the workers were all insured and had a direct interest in the success of the insurance and in its cost, particularly if they paid part of the premium. All of these groups had their attention drawn sharply to the importance of health.

The results are beginning to be seen in health activities on the part of insurance companies, employers, and employees to promote educational and other campaigns for better health. The promotion of group health through this new development should be one of the most effective methods of the future in the effort to imbue the rank and file with the desire and incentive for improving health.

The Value of Periodic Medical Examinations

THE most striking testimony yet offered to the value of periodic medical examinations has recently been furnished by the Metropolitan Life Insurance Company, which for more than seven years has been offering the life extension institute service without cost to its policyholders. Approximately six thousand persons were examined under this plan in the years 1914 and 1915 and the after history of this group was observed up to November, 1920, for an average period of five and one-half years per person. The expected mortality for a group of the class and age concerned would have amounted to 303 deaths, but actually only 217 deaths occurred,—a saving of 28 per cent.

The number is small but the difference is so marked that it cannot reasonably be attributed to chance, and the company estimates that the sum of forty thousand dollars spent in these medical examinations has effected a saving in mortality in excess of $126,000. Results of this kind should be of the greatest assistance in furthering the movement for systematic medical examination, which offers the only hope of effective control of the degenerative diseases of adult life.

The Industrial Menace of Noise an Important Issue

IN THE very general improvement in the factory sanitation, industrial surgeons have made a successful and beneficial warfare against fatigue, bad ventilation, poor lighting, and dangerous machinery. The employee is protected against contagious diseases; his working postures have been studied and corrected; he is supplied the means of maintaining cleanliness; he is taught the value of his health and the means of conserving it. To date, however, too little attention has been paid to the very deleterious effects which loud and continuous noise exercises upon the health of industrial workers. Not only does the continuous exposure to noise produce fatigue far

more quickly than muscular effort, it also produces an irritability and interferes with concentration in such a way as seriously to handicap efficiency. This lowers output and increases production cost. These effects are not remarkable when one considers the thousands of auditory stimuli which daily impinge upon the brains of workers in the noisy trades.

Unfortunately, many factory surgeons regard the din of factories as wholly inevitable and take no steps to its reduction except perhaps to advise the wearing of ear plugs or some other individual protective device. In some factories the introduction of the electric drive has had a quieting effect and in a broad way it is recognized that most noise represents lost motion, but there has been no systematic attempt to eliminate all unnecessary sound from industry.

The one-lunged, giraffe-like automobile of a few years ago was an animated cacophony. The modern car is the silent embodiment of power. The demands of the general public have produced this result. In a similar way, industrial surgeons can and should undertake seriously and systematically the muffling of factories. In this they should seek the cooperation of both engineers and operatives.

Prof. H. J. Spooner in his Chadwick lecture presented in this issue of THE NATION'S HEALTH has raised another interesting point in this connection. He proposes that there be fixed a limit of permissible noise, in other words, to create a sound unit. This of course is not easy, but it is logical. Perhaps the standard should be the necessity of the sound in question, but there are noises connected with the operation of factories which are now regarded as necessary and unavoidable which with the mechanical improvement in machinery may be eliminated.

Ohio Eliminates Red Tape and Gets to Work

CARING for the crippled child has received but little thought on the part of public health officials in the past. Many states through workmen's compensation and other measures are providing for the rehabilitation of the industrial cripple, and the Federal Government has developed extensive machinery for the treatment and re-education of disabled former service men. But the crippled child is not the victim of our industrial system, nor is his handicap the result of military service, so that neither the appeal of economic breakdown nor that of patriotism can be employed in behalf of these unfortunates.

Elsewhere in this issue of THE NATION'S HEALTH appears an article on the Ohio plan for solving the problem of the crippled child, written by Edgar F. Allen, a business man of Ohio, who, with the aid of other business men of that state, has conceived and developed a scheme for caring for the crippled child that at once invites the respect and challenges the consideration of hospital and health workers everywhere. Backed by forty-six Ohio Rotary Clubs, which constituted themselves into the Ohio Society for Crippled Children, legislation has been enacted providing first for treatment at state expense of all crippled children, and second the mandatory establishment of special schools and classes for crippled children, the state allowing three hundred dollars per child.

The significant feature of the Ohio plan is the handling of the problem on a district basis—nine districts already having been established—so that the facilities are brought to the child and not the child to the facilities. Experience has proved the one institution plan a failure since 90 per cent of the children come from within a radius of forty miles. Another point of interest is that the state will subsidize private and general hospitals which have certain standards of equipment and personnel rather than erect special state hospitals. The sponsors of the plan believe that better results will be obtained and much red tape eliminated by means of this arrangement. Follow-up work by trained workers is another important element in the program.

Two years ago Ohio had a total of 110 beds for crippled children; today it has six hundred beds and more are expected. The twelve thousand crippled children in Ohio will soon be receiving their long needed attention. Public officials and business organizations in other states may well emulate Ohio's example.

On the Writing of Medical Editorials

AN EDITORIAL is supposed to represent the crystallization of the policy of the publication in which it appears. Its function is to discuss in a broad way some topic of interest to readers, to present the pros and cons of an argument, and to debate them to a definite conclusion. It is to be a signboard to thought, a direction flag toward advancement. It must combine the qualities of clarity, brevity, timeliness, and frank courage. It does not "say it with flowers," it tells it with a wallop.

The average medical editorial does not do these things. There seems to be a sort of mental hazard about discussing freely and frankly the big problems which confront us as a profession, a shrinking from writing boldly about the great evolution which we are now undergoing, a fear

lest somebody's feelings be hurt, a conservatism which will accept only the copper of thought, lest it turn out to be a counterfeit. Hence medical editorials as a rule follow a safe middle-of-the-road policy, filling space with noncommittal, invertebrate statements which influence nobody.

It is much easier to write abstruse discussions of highly technical matters than it is to take a definite stand on a moot subject like health insurance. Almost anybody can read over a laboratory paper and produce a re-hash editorial, but it takes thought and time and abdominal content to thresh out the new adaptations of medical teaching and the socialization of medicine.

Perhaps, though, there are some good reasons for this. Medical journalism is as yet a relatively unexplored field, despite the fact that medical journals have been published for nearly two centuries. Possibly this arises from the fact that the journals which are owned by societies are afraid of the organization, while those which are privately owned fear the advertisers. Very few medical editors adopt their career as such in youth and rise to the sanctum by application and training, and truth to tell, many lack the broad gauge viewpoint and wide knowledge which must go into the direction of a really good medical journal. Too frequently they are unsuccessful practitioners or men whose bent is largely political, a state which in some instances is fostered by the old system of making the secretary of the society also the editor of its journal. Sometimes a medical editor is not even a physician and he is therefore without a broad background of knowledge by which to form judgments. Too frequently the editor is a busy practitioner who accepts without question the papers which are submitted for publication, runs the propaganda fillers which he receives from various agencies, prints the advertisements brought in by the advertising agent, turns the proofreading over to the office girl and once a month dashes off a hasty noncommittal, innocuous editorial. His clientele has asked for whale and he has given them jellyfish.

Of course there is a good deal more to medical editorship than the writing of editorials. A lot of study of books and magazines and men goes into it. The ruthless rejection of compiled articles written on a typewriter which has lost its quotation marks; the recognition and stimulation of potential genius; the reading of the times aright; the repression of fads; the perpetual combat of charlatanism both without and within the medical profession; the constructive reviewing of books; the collection of news; these and a hundred more components go into the job being a good medical editor. To do these things well requires a certain type of mind and a very thorough training. Medical editors are not born, they are made,—usually by accident. At present, there is no regularly established way of going about getting to be a well trained medical editor. There is of course the custom of drifting into it, or one may get his friends in the state society to elect him to the position. This latter method has a peculiarly fatal effect on medical editorials, since a part of such an editor's effort at holding his job is to lacerate no sensibilities and to stand in with the crowd in power. This throws more light on the safety first type of editorial which characterizes most medical journals.

Is it not about time to recognize medical journalism as a distinct brand of literary effort and to provide in our universities courses which will lay the foundation for broad-minded, courageous medical editorship? Within a generation such a policy would change the whole face of medical journalism and would work tremendously to the stimulation and advancement of medicine.

Nems and Calories as Measurements of Food Values

THE visit to America of Professor Clemens Pirquet of the University of Vienna has been notable for several reasons. Professor Pirquet has been delivering the Silliman lectures at Yale and has spoken at many of the other large universities of the country; and his intimate knowledge of American conditions, dating from his membership in the faculty of Johns Hopkins University some years ago, combined with his charming personality, has made him an unusually happy envoy of the period of renewed cooperation with the scientific world of Central Europe. Above all, however, Professor Pirquet's addresses have helped to call attention to the interesting developments in the large scale organization of dietary hygiene which has been necessary in connection with the post-war reconstruction problems. During the war Dr. Pirquet took a leading part in the organization of the food supply of the Austro-Hungarian empire and for the last few years he has applied his technical knowledge and executive power to the direction of the work of the American Relief Administration in Vienna and in the neighboring countries.

The main essentials in the Pirquet system[1] are two: the estimation of dietary needs on the Pelidisi system, and the measurement of food values in nems instead of calories. The Pelidisi system rests on the assumption that a certain relation between the weight of the individual and the sit-

1. Mayerhofer and Pirquet: Lehrbuch der Volksernährung nach dem Pirquetschen System. Wien, Berlin, 1920.

ting height indicates normal nutrition and in allotting the Hoover feedings to the children of Austria only those below a certain Pelidisi have been provided with the American meals. The question as to the best standard for the estimation of malnutrition is still an open one but it will be important in the future to determine the relative value of the Pelidisi scale as compared with the height-weight-age ratio and other standards used in this country.

The nem differs from the calorie as ordinarily used in this country as a measure of the energy value of foods in two respects. In the first place, it is based not on an abstract physical unit but on an actual concrete food portion, one nem being equivalent to the nutritive energy of one gram of milk—(about two-thirds of a calorie). In the second place, the nem values of other foods are estimated not on the raw calorie basis, as has been the general practice in this country, but on the German plan, which takes account only of the caloric value which can actually be assimilated by the human organism. The use of nutritive instead of raw calories is certainly sound, although the difference between the two is not very marked and for purposes of popular exposition the conception of the nem seems much simpler than that of the calorie. In this country, however, popular education in the significance of the calorie has gone so far that it would hardly be desirable to attempt to introduce a new unit. The actual condition of feeding operations involving a million or more children on the Pelidisi and nem system is, however, a large scale experiment of the greatest interest to experts in nutrition and no one who follows Dr. Pirquet's computations can fail to be impressed with the tremendous advantage enjoyed by nations in which the metric system is in use.

Importance of Cosmetics from the Viewpoint of Industrial Medicine

SUDDENLY her pocketbook was snatched from her hand! The hero pursued, overtook, recovered, and with a courtly bow returned it to its fair owner. She opened it and, before thanking him, powdered her nose!

This little drama of everyday metropolitan life may or may not be true, but it illustrates how firmly the cosmetic habit has fixed itself upon our American womanhood.

Time once was when a girl who heightened her beauty with a little rice powder was talked about; if she added a dash of rouge, she was a hussy; while a lip stick indicated strong criminal tendencies. Nowadays these things excite no more comment than the exposure of a pair of feminine knees, and the modern woman paints, powders and does her eyebrows and hair in a way which would have seriously threatened her reputation in her grandmother's time.

It now appears that what has hitherto been regarded as a harmless form of exterior decoration is not without grave dangers and that there is a considerable element of grim truth in the old joke about the girl who painted herself so excessively that she had lead colic. The literature of lead poisoning contains a few scattered references to the occurrence of plumbism from the use of paint, rouge, and hair dyes, but until Barron and Habein, in a recent issue of the *American Journal of the Medical Sciences*, directed attention to the subject, Holland's article published in 1881 in the Third Annual Report of the Kentucky State Board of Health was the sole reference to the lead intoxications following the use of "Flake White" as a cosmetic. This extensively sold face powder is pure lead carbonate which has been ground to impalpability. It is cheap and as ordinarily applied has a lasting quality. It is dispensed as a lotion or as a powder. When used, the lotion is dabbed on and allowed to dry. If the powder is employed, it is first mixed into a thin paste by rubbing it between the palms with a little water. It is then applied to the face with some friction, particular attention being paid to the wrinkles. At first, it is greyish-white but on drying, a pearly white "complexion" results. Poisoning follows slowly and is often so mild in its manifestations as to escape detection, but frequently very serious intoxications and even death may follow. In five cases of poisoning due to the use of this cosmetic (Barron and Habein) four were fatal. It is entirely probable that mild lead poisoning from this source is very common and widespread, since this preparation may be purchased in almost any drug store. The obvious remedy is the enactment and enforcement of stringent laws prohibiting the incorporation of any toxic substance into any cosmetic and the examination of all face powders and beauty lotions now on the market and the immediate withdrawal from sale of any which contain poisonous materials.

From the viewpoint of industrial medicine the knowledge that plumbism may be produced by cosmetics is of tremendous importance, since it may furnish a clew to the origin of obscure cases of lead poisoning. It supplies a line of action to be used both in cure and prevention. Undoubtedly companies have sustained damage suits on this account where in reality the fault lay in the use of "Flake White" or some similar product.

In one of the cases reported by Barron and Habein there is a very significant observation.

Three years previous to the development of typical symptoms of lead poisoning, this patient's dentist observed a blue line on her gums. In spite of this unmistakable evidence of lead intoxication, her disease was allowed to progress until she weighed only seventy-two pounds and had developed bilateral wrist drop. In this woman's history there was a record of two surgical operations. Uncalled for surgical interference is frequently mentioned in the literature of lead poisoning.

Eye Defects and Industrial Accidents

THERE are 15,000 industrial blind in the United States, or 13.5 per cent of the total blind population, according to a report in a recent issue of *Science,* by Earle B. Fowler of the Committee on Elimination of Waste in Industry of the American Engineering Council. Eye injuries are factors in 10.6 per cent of all permanently disabling accidents.

Vision tests among employees reveal the wide prevalence of subnormal vision which necessitates excess eye fatigue and results in a reduction in quantity and quality production. Examination of ten thousand employees in factories and commercial houses found 53 per cent with uncorrected faulty vision.

The report suggests that visual acuity standards be determined for each grade of workers with the necessary minimum for each kind of work in order to avoid excluding workers shown by practical tests to be efficient producers. Bringing working conditions up to the best will improve the efficiency of workers with faulty vision, though correction of eye defects is indispensable to efficient production.

The Complexity of Tropical Health Problems

THE sanitarian of the temperate zone ás a rule has a certain amount of technical knowledge of the public health problems of the tropics. He knows, for example, the various modes, mechanical and biological, of the transmission of the diseases of warm countries and he knows in a textbook fashion the measures to be taken for their control and eradication. To him, however, the entire equatorial belt is a hot region and he does not realize that the several nations of South America possess every climate known to man, parched deserts, low humid sea coasts, great temperate valleys, and high regions of frost and snow. Naturally, each of these presents an entirely different hygienic problem modified by the zoological environment, the food supply, and the modes of human existence.

The public health worker visiting these countries finds himself handicapped by his ignorance of their geography and an inability to establish a sympathetic understanding with the people because of the differences in language. He is horrified at finding cities which were old before Manhattan was begun still without sewer systems. He sees milk of questionable purity marketed from a horse's back by an unwashed farmer, and the fly-infested markets appall him. In many cases he discovers that the drinking water is practically dilute sewage and if he does not tuck in his bed-net carefully, his nights are a period of exquisite torture and grave danger. The pot bellies of the naked children playing in the garbage strewn streets of bespattered mud and thatch villages tell him of the prevalence of uncinariasis and the paucity and unreliability of the vital statistics bring home to him the apparently absolute disregard for human life.

Plague is endemic in almost every country of South America and is gradually spreading from the ports to the inland towns remote from railways, there to cause acute perennially recurring epidemics. Smallpox is almost regarded as an inevitable and unavoidable incident of life. Typhus is rampant except in those situations where the climate does not permit lice to flourish. Dysentery, yaws, and pinta are almost everywhere. Yet these diseases which are hindering the development of one of the richest portions of the globe are apparently viewed with unruffled fatalism—an inarticulate helplessness.

The visiting sanitarian becomes critical and, unfortunately, he is apt to express himself freely regarding what he believes he has discovered, forgetting that the public health movement is a comparatively new thing in the world and that even the most enlightened nations have their areas of sanitary backwardness. He assumes that the conditions which he has observed exist because of sheer waywardness and carelessness, losing sight entirely of the enormous difficulties which face the men who are trying to do sanitary work in the tropics.

In practically every country of Central and South America there are one or more well trained men who are laboring in hygienic fields, frequently with only the half hearted backing of their respective governments, without a trained staff, without adequate laboratories, without modern hospitals, without sanatoriums, without sufficient appropriations. That these men succeed as well as they do is little short of marvelous. Yet they are doing things, really constructive things which are forming the basis of a sound national health. At Guayaquil, Ecuador, for example, yellow fever has been eradicated and the

Director General of Health, Dr. Wenceslao Pareja, is carrying on an active campaign against plague. In Venezuela, Dr. L. G. Chacin Itriago has built up a genuinely efficient National Department of Health, and has successfully combated plague in Caracas. Dr. Henry Hansen has stamped out yellow fever in northern Peru. Dr. D. M. Molloy has done the same in Nicaragua, and other workers of the Rockefeller Commission have done the same in Mexico.

To be sure, national sanitary development requires time, just as does any other form of national development; what has been accomplished by the Americans at Panama can be brought to pass elsewhere in the tropics and by other nations, but is must be remembered that the problem is much more complex and difficult in the tropics, where the parasitic flora and fauna are far more prolific than in the temperate zone.

Dispensary Survey Develops Pay Clinic Idea

AN OUTCOME of the study of the dispensary situation in New York City made by the Public Health Committee of the New York Academy of Medicine and reported in earlier issues of THE NATION'S HEALTH, was the recent establishment of a pay clinic by the Cornell University College of Medicine. Expressions for and against this project have appeared in the public and medical press, voicing again the divided sentiments on the social responsibility for providing adequate medical, surgical, hospital, and nursing attention for all groups in the population.

The New York survey revealed a distressing situation wherein more than two million normally self-supporting persons, unable to afford the fees of specialists or diagnostic consultants were obliged to patronize the free dispensaries or go without attention. Ample facilities of every character are available to the rich and a well organized dispensary system attends to the needs of the very poor, but the large middle class—persons of limited resources and unwilling to accept charity—are apparently without satisfactory provision.

Pay clinics are to be found in a growing number of American cities, though frequently such clinics are specialized in character. Attending specialists as well as administrators testify to their worth and point out the urgent need which such clinics fill. Patients' fees have frequently made it possible to operate the clinics on a self-supporting basis and in some instances even increase the remuneration of the paid staff. Fees collected by the Public Health Institute of Chicago at its venereal disease clinics and those charged by Cornell University are somewhat higher than in other clinics, but judging from attendance and the satisfaction expressed by the patients, the costs are within their resources. Reasonable fees are charged for the first examination, and medicines, laboratory and x-ray services are furnished at cost. The patient receives the attention of the necessary specialists and, in order to avoid hasty examination, a limited number of patients are cared for each day, thus assuring personal and unhurried attention.

Charges that pay clinics are unfair competition with the general practitioner are frequently heard. The trustees of the American Medical Association after considering the matter recommends that the fee charged by pay clinics be not less than that charged in general practice and that there be a cooperative relationship between the clinic and family physician whereby the latter can refer patients to the clinic and receive report of the findings.[1]

In addition to providing examinations by groups of physicians at a cost within the ability to pay of a major portion of the population and making the clinics practically self-supporting, the Cornell clinic is expected to provide a larger and richer supply of clinical material for teaching purposes, thereby advancing scientific investigations into the problem of disease.

Public Health in the Special Session of Congress

THE special session of the Sixty-Seventh Congress, which convened on April 11, 1921, and adjourned on November 23, 1921, had before it 143 bills concerned with some phase of public health. Of this number only six passed both houses of Congress and become laws. These laws include the Shepard-Towner act for the promotion of the welfare of maternity and infancy, the Willis-Campbell anti-beer legislation, a general deficiency bill in which provision is made for the continuance of the Interdepartmental Social Hygiene Board, the creation of a Veteran's Bureau, and two minor measures, one allowing the Cincinnati Post Office to use a special cancellation stamp for the Health Exposition held there in October, and a bill providing for the distribution of surplus army tobacco to ex-service patients in hospitals. During the approximately six months that the special session was at work, about 10,000 bills and resolutions were introduced in the House and about three thousand in the Senate. Only about 1 per cent of this number was concerned with public health.

1. J. A. M. A., November 5, 1921, Page 1262

Insurance Data Seem to Promise a New Life Standard

HOW much extension in the length of human life should be expected in the years to come? In the fifty-five years between 1855 to 1910 the expectation of life was increased eleven years, according to life table compilations published by Louis I. Dublin in the *Statistical Bulletin* for December. Will it require a corresponding interval to bring about another increase of eleven years, or will life extension be more rapid, or less?

Doctor Stephen Smith, founder and first president of the American Public Health Association, and who was ninety-nine years old in February, voiced his belief in a new life standard of one hundred years in an address during the semicentennial jubilee. "We have too long been content with the false code of the Mosaic law, that limits life to 'three score years and ten' with a possibility of reaching four score years. Biology teaches that the normal and potential life of man is one hundred years, that every child born is adapted in physical construction and function, to live a century."

It is obvious that a continued reduction in deaths from preventable causes and the postponement of deaths from other causes will markedly extend the life expectation of fifty-one and one-half years which existed in 1910. The effect on the longevity of human life by the elimination of certain causes of death is possible of definite measurement. Thus the loss from tuberculosis is equivalent to a reduction of three years in the life span of white persons; the loss from heart disease is one and three-fourths years, from cancer and Bright's disease one and one-fourth years each.

After considering the statistical evidence relating to the possibilities of life extension, Dublin ventures the statement "that the duration of human life may be extended considerably more than ten years and the expectation raised from fifty-one and one-half to sixty-five years by the application of conservation measures very well known to the medical and public health professions."

RECENT studies of the Department of Labor on the working conditions affecting the million and one-half children from ten to fifteen years of age who are employed in farm work in the United States decry the old conception of country life as idyllic and emphasize the fact that rural child labor is fully as flagrant an evil as was ever factory child labor. While it is not held in the report that all these children labor to their own injury or in violation of existing child labor laws, fair play is nowhere accorded these youthful farm workers. The exploitation of children is not the vice of any single industry nor is it confined to any single section. In the tobacco fields of Connecticut Valley, the truck gardens of Ohio, the sugar-beet fields of Michigan and Colorado, the cotton belt, the Imperial Valley, long hours of labor, monotonous, back-breaking drudgery, and untoward living conditions characterize child labor. Child workers in Colorado showed 25 to 35 per cent retardation in school and over 70 per cent of a group of more than one thousand beet workers in Colorado exhibited postural defects. Absolute lack of educational opportunities was shown to exist in the children of seasonal workers in three hundred Baltimore families, and in Oklahoma children as young as five pick cotton regularly. There are no provisions in state or national laws to give protection or supervision to agricultural child laborers. Fourteen states specifically exempt agriculture from any restriction as to hours. Twenty-three other states do not mention it in the occupations for which hours are regulated and only eleven limit the hours.

If this great army of children is to be lifted above the dregs of the social stream which is carrying them on, it will be through educational influences during the impressionable and modifiable period of early youth. The real corrective for the rural child labor that is injurious to health and education lies in compulsory education. Something is being accomplished through the Farm Bureau through its County and Home Demonstration Agents, and new ways of child management have been introduced in some localities through the Boys' and Girls' Club, but if the situation is to be remedied, rural communities must assume a new attitude toward education and appreciate the biological and psychological necessity for the play activities of childhood.

THE first and second issues of *The Red Cross Courier* are before us, a weekly newspaper, which, while primarily for interdepartmental communication, is put up in true journalistic style and the story of achievement in all fields of Red Cross service is sufficiently interesting and important to bespeak an increasingly wide circle of readers. Its circulation should promote unity and enthusiasm in the ranks of Red Cross workers and lead to better mutual understanding among social agencies and a broader humanitastyle, and the story of achievement in all fields rianism everywhere. If public sentiment has been slow to support public agents of health, news getting of this character and its wide dissemination should improve the situation.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

Editors for the Association

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Health Problems Involved in Noise and Fatigue

Rhythms, Cadences, Periodicities Regulate Human Activities, but Noise Lessens the Aptitude for Work

BY PROFESSOR HENRY J. SPOONER, M. I. MECH. E., F.G.S., ETC., MEMBER OF THE INTERNATIONAL COMMITTEE ON INDUSTRIAL FATIGUE, LONDON, ENGLAND

SOME twenty years ago an engineer, one who had been actively engaged for many years in the design of machinery, consented to write a book on "Machinery Design" for a famous firm of publishers. About eight years later the book was launched; and, strangely enough, it found a ready acceptance in the United States. This led to the author being invited to join some of the professional institutes of that progressive country, and also to his becoming acquainted with some of the leading engineers of the United States, notably Major Frank B. Gilbreth, America's most distinguished Industrial engineer, with whom he has been in constant communication to this day. As is well known, Dr. Gilbreth was for years associated with Frederick Winslow Taylor, the father of scientific management, and since the death of the later has become the leading exponent of all that the improved methods of management stand for. But these improved methods which have worked such wonders in the way of increased output with less fatigue are based on the elimination or reduction of all forms of waste, particularly of human waste. Happily, this association with Gilbreth has kept me in touch with all the important developments in scientific management during the past decade, and has led me to study them, particularly that section which deals with the powers of human endurance, and of the effects of fatigue on human efficiency; a subject usually referred to as "Industrial Fatigue." These studies and researches stood me in good stead during the war, and I venture to believe enabled me to make my activities more useful to my fellow workers.

According to Dr. Henry Head pain is a necessary ingredient of every peripheral sensation, the comfort and the general effectiveness of the organism depends upon the capacity to dominate the external stimuli, physical exhaustion being the expression of the loss of that capacity.

The influence of noise, shock, and vibration—lacking periodicity—is wholly disorganizing and the correction of badly balanced machinery and of obviating in civil and industrial life the maddening, meaningless fanfare of sounds that sap our nervous reserves becomes an urgent engineering problem, international in scope.

Now, apart from muscular fatigue, the output of the worker is primarily affected by the quality of the air he works in, the efficiency of the lighting arrangements, and the amount of noise in his vicinity. But, strangely enough, although a great deal of attention has been paid to the heating and ventilation, and to the lighting of workshops and work rooms, and such like matters, very little has been done in any country to protect the workers against the fatiguing effects of noise. The fact is, most of us soon get used to noise of any kind, and we do not always feel the nerve strain due to it, nor are we often aware of its fatiguing effects; as the ear soon gets accustomed to noises that at first were most disturbing. For instance, a person takes up his abode near a railway line, and the first night or two cannot sleep owing to the disturbing effects of the passing trains or of shunting operations; or he may be at the seaside near enough to hear the roll of the waves, but soon these noises cease to interfere with his sleep; in other words, there is apparently an *aural tolerance*, peculiar to each individual, which gradually functions. Thus, having grown so accustomed to hear noise at every turn, wherever we may be, the tyranny of almost unbearable noise in many of our [illegible] activities, [illegible] streets, and sometimes in our homes, is apt to be accepted as something in the nature of things that cannot be cured, and to the [illegible] extent the normal being becomes practically unconscious of its injurious effects upon his nervous system. But there can be

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no question that those who are neuropathic, or have a highly strung nervous system, suffer tortures through noises that apparently do not much distress those of a phlegmatic temperament. The case of the former is aptly set forth in the satirical *Obliviad*, as follows:

Chromatic torture, that some saw-mill near,
To drown these notes, or, could I Codrus hear!
Not touch of file, but grating sound of rasp,
And pen to splinters shiver'd in his grasp,
Such forced, alas! on the long dreaded doom,
Much discord drive another to the tomb;
No kind mechanic to attend my call,
And give a double sash, or thicker wall;
Torn every nerve, intolerable grief,
And the Vice-Chancellor refuse relief!

Strangely enough, it sometimes happens that noise in an industrial works is a greater nuisance to those residing near the works than to those working within them. Some three or four years ago I was professionally engaged in such a case, where, under duress, the proprietors of the works called me in to deal with the problem of abating the nuisance, and this led me to undertake a certain amount of research and experimental work in this field, and to give a great deal of attention to the general problem of noise prevention and reduction. So, when in the early part of this year I was invited—as a member of the International Committee on Industrial Fatigue—to read a paper before the American Society of Industrial Engineers at their National Convention held at Milwaukee in April, I selected as my subject "Fatigue Due to Noise, and Methods of Elimination," and I believe that this paper represented the first formal attempt that had been made to call attention of engineers and others to the importance of the subject. This humble effort on my part met with such a flattering reception that I am venturing, in the Chadwick Public Lecture, my second communication on the subject.

It will be convenient to commence with a few definitions and maxims relating to fatigue, and a definition of noise, and then to proceed with a brief description of the ear, and to touch on matters relating to hearing and deafness, then to deal with the effects of noise, and such like matters, and to attempt to classify the primary kinds of noise that should receive attention; and finally to suggest how some of the problems that arise in noise prevention and reduction may be tackled.

Fatigue and the Ear

The ear is a very complex and highly developed organ. Through it the nervous system is easily affected and fatigued.

A period spent in the midst of working machines and mechanical operations, causing deafening and strident sounds of a very wide range, and shocks to the auditory nerves, produces a feeling of sensory fatigue. Although this fatigue attacks primarily a single organ, it little by little extends to the whole of the nervous system, leading in some cases to such a feeling of weariness that it may impair the capacity for work in a greater degree than severe muscular fatigue. Nothing is more fatiguing to some workers than a noisy, unrestful, fussy atmosphere.

There is far too much avoidable noise in many industrial works. Worry is insidious and it spreads over the brain like a leaven. The constant dwelling upon an idea which becomes an obsession tends to destroy the mental balance. Nerve and tone largely depend upon the mental attitude. Whatever causes mental depression or discord exhausts the force in the cells of the brain, and tends to lower the nervous system generally.

The same cause may give rise to pain or pleasure according to the individual temperament. As long as we are in good health we are little aware of intellectual fatigue, but as soon as ill health comes upon us we find how exhausting brain work is. Extreme fatigue, whether muscular or intellectual, produces a change in our temper, causing it to become more irritable.

Attention is a limited quantity; it requires time. If, then, attention be distributed over too wide a field, there is a corresponding loss of intensity and of distinctness.

We could lengthen our lives if we took needed rest habitually, for it is habit that kills or cures.

The problem of scientific industrial management, dealing, as it must, with the human machine, is fundamentally a problem in industrial fatigue.

There are considerations so inexplicable at present in terms of physiology as to be called "psychological."

Definition of Noise

Johnson's dictionary definition of noise is: "Any kind of sound, generally applied to that made by brutes, or inanimate bodies, and implying excessive loudness; an outcry, clamor, or boasting and impertinent talk."

Of course, we all realize that the sensation which we call noise is quite different in character from the musical sensation of sound. Noise is produced by irregular, unperiodical movements of those bodies which convey sound. From daily experience we learn to distinguish one noise from another. We therefore call them grating, rasping, creaking, hissing, and banging noises. Their character depends partly upon the strength of the separate shocks, partly upon the rapidity with which they follow each other, but partly also upon the presence of real tones of various pitch which are intermingled with the noise. Low tones are often connected with a grating noise, and with a hissing noise generally very high tones, which impart to them their peculiar character. It is often by this intermixture of tones that we are able to determine the cause of the noise.

Hearing and Deafness

Without attempting minutely to describe the ear, which has been called the second gateway of wisdom and is regarded as the most complex of all parts of the human frame, I may explain that the external ear serves in some measure for collecting the undulations of sound transmitted through the air, and reflecting them into the auditory passage, at the bottom of which they strike against the membrane of the tympanum or drum, which, being larger and more movable than some of the subsequent parts, is capable of transmitting a stronger impulse than they would immediately receive. The impulse received by the membrane of the tympanum is conveyed by a beautiful mechanism to the cochlea, a detached channel, which acts as a micrometer of sound. The inner membrane of the cochlea is lined—as Corti has shown—with about three thousand minute fibers, membrane of the tympanum or drum, all connected with the acoustic nerve; each of these is tuned for a particular note as if it were a delicate resonator, and only vibrates in unison with this note, being deaf for all others. Hence, however complete external sounds may be, the microscopic fibers can analyze and reveal the constituents of which the sounds are formed. The tympanic cavity passes downwards, forwards, and inwards into the eustachian tube. This canal, which connects the middle ear to the back of the throat, has two orifices which open, one into the pharynx and one into the drum. It is said that this canal permits us to hear our own voice; it also allows

the pressure on both sides of the drum to equalize when the mouth is opened. This is why artillerymen instinctively open their mouths at each shot of the cannon.

The faculty which some individuals possess of emitting tobacco smoke by the ear depends upon a perforation of the drum-head.

Strangely enough, many parts of the ear may apparently be spared without very great inconvenience; this is due to the fact that we hear very perfectly by means of impressions communicated by the sonorous waves to the auditory nerve by the bones of the skull and of the face, or by the *natural* teeth, and through them to the large bones of the head; and even when the membrane of the tympanum and all the small bones have been destroyed by disease, the undulations of the air still continue to affect the organ. Hence it is that, even when the ear is stopped up, the ticking of a watch, if placed between the teeth, can be distinctly heard. A case is quoted of a man who had the auditory canal quite obliterated, and yet could hear sufficiently to carry on his business; however, on covering his head with a skull cap, he became deaf immediately. But a witness in a law case recently said he could only hear when his hat was on —it was probably a hard felt one.

A merchant at Cleves who had nearly lost the ability to hear, was sitting near a harpischord while someone was playing, and found that as his pipe rested on the body of the instrument he could distinctly hear all its notes.

The instrument called *audiphone* or *dentiphone* is constructed on this principle, and consists of a fan-shape vulcanite plate—held between the teeth—whose vibrations are conveyed to the aural nerve.

It appears that about 40 per cent of deaf cases are not congenital, but acquired through accident or disease. Among the causes of acquired deafness are fright, falls, injuries, cold and exposure, and smallpox, fevers, etc. A good friend of mine, a distinguished peer and a great industrialist, recently wrote to me as follows:

I am convinced of this, that in later years, since I lost my hearing, I have been able to concentrate my thinking much more effectively, and have been able to do a larger amount of work without being conscious of any resulting increased fatigue. This may be merely constitutional, or it may be that the exclusion of sound has a bearing upon the position.

The modern conversation tubes and double auricles are marked improvements upon the old ear-trumpets, but from my investigations and experiments, I have formed the opinion that a more efficient instrument could be devised.

It appears that people with the largest ears hear farthest, and distinguish sounds with most facility, and it has been suggested that this consideration has induced some savages to adopt the strange custom of extending the lobe by piercing them to hang in them rings, etc. It is a well known fact that the hearing of blind people becomes extraordinarily acute. Darwin said: "The late Justice Fielding—who was blind—walked into my room, for the first time, when once he visited me, and after speaking a few words said: 'This room is about 22 feet long, 18 feet wide and 12 feet high,' all of which he guessed with the greatest accuracy with the ear."

Strangely enough, there is a remarkable falling off in the power of hearing high notes as age advances.

Recurrent Sounds

Men working together or in gangs instinctively tend to work rhythmically: thus, two carpenters planing the same piece of wood will move their planes alternately so that, when one is pushing his forward, the other is drawing his back; thereby securing a recurrence of sounds, which from their inequality would be harsh if they were heard simultaneously. In the same way two paviors, driving in stones, bring down their hammers time about, to the accompaniment of peculiar sighs or grunts, and so do men at the smithy when they are forging a bar, and the smith, when he has dealt a succession of monotonous blows, relieves his ear by letting his hammer ring musically on the anvil; and I need not tell you how sailors, heaving the anchor or hoisting the sail, sing together in chorus; or remind you that the most serious of hard work, fighting, is helped and inspired by the drum, the bagpipes, and the trumpet. As to the paviors, the sighing noise they make fails to ease their labor and is positively harmful. Sir Benjamin Richardson who had medically attended many of them, explained that "as they let down upon the laid stone the heavy hammer, they force out of their chests a large volume of air. They produce by this movement a curious noise like a long sigh, and they think that by this means they in some manner relieve themselves of strain of labor. This idea is purely imaginary, and the injury inflicted by the practice it engenders is of a serious kind. It brings on dryness of the throat and hoarseness, a sense of exhaustion in the muscles of the chest and a feeling of emptiness within the chest."

Effects of Noise

Medical authorities are agreed that noise is injurious to health, and that violent or loud sounds are unfavorable to the brain, and are an undoubted source of fatigue and nerve strain. As Dr. H. M. Vernon tells us, "the fatiguing effect of noise is chiefly due to its influence on the faculty of attention. Noise distracts attention and therefore necessitates a more intense mental application to the task in hand in order to overcome the distraction." Indeed, very few people are capable of concentrating their minds on any subject in a noisy atmosphere and in exceptional cases, where mental work is done by a worker who is apparently unaffected by even violent noises, there can be little doubt that sooner or later he will have to pay the penalty. As to noise in textile factories, I may quote my friend, Dr. Stanley Kent—who said at the Efficiency Exhibition, "the deafening noise in the mills of the North will have to be reduced, as the workers are becoming conscious of its fatiguing effect." "The work of weaving is exacting, as it is very noisy and it requires constant attention," writes Dr. Vernon. It is well known that trunk makers, riveters and boiler makers, etc., usually become deaf. Hence the saying, "deaf as a trunk maker." Sir Benjamin Richardson, in writing about boiler makers, said, "they are deafened, in some instances markedly, from the constant din, and in rare cases the circulation through the brain is affected, so that giddiness and nausea follow as results. These phenomena are most observed in the early career of the worker; they are diminished when the sensibility of the ear to the persistent sound is decreased." Sir Benjamin, in referring to the somewhat short lives of commercial travelers, said, "the shrill whistle of the engine in the stations, with the constant bustle and worry and excitement, all add also to their share of the mischief."

The deafness of army gunners and bell-ringers is proverbial, often due to perforation of the drum of the ear, when the membrane has been too sharply impressed with the violent vibration of air due to noise.

"All the world is sensible of the uncomfortable effect that certain

sounds have upon the nerves, and consequently upon the spirits; and if a sinful world had been filled with such as would have curdled the blood, and make the sense of hearing a perpetual inconvenience, I do not know that we should have had a right to complain," wrote Cowper in one of his letters. "I am constitutionally susceptible of noises," wrote Lamb. "A carpenter's hammer in a warm summer noon, will put me into more than midsummer madness. But those unconnected, inset sounds are nothing to the measured malice of music." The fact is that most middle aged persons living and working in big cities are slightly deaf, the roar and rattle of the traffic, motor-busses, taxis, traction engines, sirens, and the nerve-racking telephone and irritating clatter of typewriters being responsible. "That night was my idea of hell," says Mrs. Asquith, describing the noises of the preparations for a sea voyage. "Next morning, the sea was still, but the screw below made me feel as if I had no inside worth mentioning." We all know how injurious to our nerves the crowing of cocks, the barking and howling of dogs, and the caterwauling of cats, can be; also the efforts of musical people. "Lucy has taken up the piano again"—quoting from a letter which was read in a recent law case. "She plays six bars over and over again. It is just like brain fever." . . . "Flow of talk, it flowed like a turbid torrent." Even in public dining places we cannot escape from noise,—which fact led a sufferer to remark, that "what is badly wanted is an inventor who will find some way of taking the din out of dinner and putting the rest into restaurant."

But the abnormal, is often very abnormal. Recently, a foreign looking passenger in the London tube, made himself noticeable. Waves of ecstasy passed periodically over his face, and he wrote hasty signs on the backs of envelopes. "Magnificent!" he remarked to a fellow passenger as they ascended in the lift. "What music in the creaking of the wheels, the grinding of the brakes, and the crash of points. I have an inspiration for a whole symphony! I wonder the idea never occurred to Stavinsky."

Sleep and Rest

Noise, of course, is the greatest enemy of sleep—life's restorative and most efficient comforter, and, as Dr. Forbes Winslow tells us, "if the recuperation does not equal the expenditure, the brain withers. The time of disturbance from necessary sleep is infallibly destructive to mind, body, and estate." In her standard work, "The Psychology of Management," Dr. Lillian Gilbreth also aptly states the case for adequate sleep and rest as follows: "All unnecessary noise should be eliminated, and provision should be made, where possible, that the workers may enjoy their sleep or rest hours in perfect quiet; . . even though they are not disturbed enough to be waked up, every noise that is registered in the brain affects the body; for it is now conceded that the body reflects every phase of mental activity."

"So far as an overpowering heaviness, a prostration of strength, and an utter inability to control our thoughts or power of motion, can be called sleep, this is it; and yet we have a consciousness of all that is going on about us, and even if we dream words which are really spoken, or sounds which really exist at the moment accommodate themselves with surprising readiness to our vision, until reality and imagination become so strangely blended that it is afterwards almost a matter of impossibility to separate the two." So wrote Charles Dickens.

We have all suffered agonies from the garrulous who talk in loud voices and gabble continuously, unmindful that much talk and much noise injures the ears and deranges the nerves. "Doctor," said such an one, "I want you to prescribe for me." "There is nothing the matter, madam," said the Doctor, after feeling her pulse; "you only need rest." "Now, Doctor, just look at my tongue," she persisted, "what does that need?" "That needs rest, too," replied the Doctor.

Use of Sound Deadeners

We have seen how noise is a cause of deafness, and that persons so affected can get some relief, and increase in their power of hearing by using such instruments as the audiphone. But prevention is better than cure, and a suitable form of ear-stopper may be used with advantage to deaden noises when they interfere with the workings of the mind. Herbert Spencer, the great philosopher, found much relief by using a pair of home-made ear-stoppers. They took the form of a spring band, almost semicircular in shape, with a little velvet-covered knob at each end, these knobs being pressed by the band onto the flaps of the ears. Returning from the Atheneum each evening about nine, he would sit with the home circle, and, if the conversation proved too trying for him, he would produce his ear-stoppers and shut himself off from the world of sound.

Noise of any kind was apt to make him very angry, and he used the word "pestilent" indifferently to men, tunes, or sparrow—when the chirping of the latter disturbed his slumbers. But many other expedients have been devised to protect the inner ear, the ear drums, and the aural nerves against mechanical injury, air shocks, and irritating noises without impairing the hearing. These devices have been named antiphones, ear defenders, sound deadeners, ear protectors, etc. They are intended for use to protect the ear against shock, particularly in gunnery practice; but in all cases where there are noises of great intensity, high pitch, or excessive persistence, the ear should be protected; as it is, these noises lead to injuries of the tympanum or drum, and the nervous apparatus of the ear, such injuries in turn often reacting upon the entire nervous system. Some of the best known ear protectors I will proceed to describe.

The *Antiphones* are the simplest sound deadeners, and they have been extensively used in the Army and Navy to protect the ear against the effect of gun-fire, etc. They consist of plastic balls composed of wax and wool, and are moulded into the external ear by the finger.

The *Aurotector* consists of a pair of plugs, made (in three different sizes) of an elastic composition, and they are placed in the holes of the ears when used. These are also very simple, inexpensive devices.

The *Dull-a-phone* consists of a pair of elastic balls mounted on screws, which are screwed into plates shaped to fit the chamber of the outer ear, and are adjustable. They are a German invention, but are little used in this country.

The *Mallock-Armstrong* Ear Defenders consist of hollow, funnel-like pieces of vulcanite with ball-like ends to fit the hole in the ear, the other and larger end being fitted with a gold wire screen. They are made in several sizes; and, as air can pass through them, no trouble can occur due to air being pressed into the ear when they are fixed in position.

The Basic Facts of Noise

In giving consideration to the problems of noise we should be acquainted with the following truths relating to sound and its propagation:

(1) Sound always originates in some movement of a body from which it is emitted, and becomes audible

only when any medium exists that will convey the vibrating motion of the sounding body to the ear.

(2) Sounds differ in the properties of quality or tone, pitch, distinctness, intensity, loudness, and volume; they also vary in their nature, according as they take the form of noise, music, or articulate speech.

(3) When rapid successive impressions on the ear follow at regular intervals, a continuous sound is heard, the pitch of which depends upon the frequency of the repetitions; such notes are, in all but the most exceptional cases, caused by vibrations of some elastic body.

(4) Sound is conveyed most frequently through the atmosphere, but nearly all bodies will transmit it.

(5) Sounds traverse the air at a uniform velocity, but with a constantly diminishing strength; they naturally follow a straight course, but their direction is liable to be modified by the objects they meet. They may be reflected, deflected, conducted, or absorbed. All sounds move with the same velocity; the gentlest whisper moves over the distance to which it extends as rapidly as the report of a cannon the same distance.

(6) There is a great similarity between the laws that govern the propagation of sound and of light.

(7) Such bodies as produce a continuous sound, like a bell, are termed sonorous. The sonorous quality of any substance is connected with its hardness and elasticity. Thus lead, rubber, and such like substances, are non-sonorous.

(8) Bodies capable of vibrating so as to produce a sustained sound are ordinarily apt to vibrate spontaneously when a sound of the same pitch is excited near them.

(9) Whatever diminishes the elasticity of the air impairs its capacity of conducting sound. Thus moisture, fogs, snow, and rain obstruct the passage of sound. Hence traffic in a fog may be only a few yards away and not heard.

(10) The velocity of sound through air is 1,142 feet per second, equal to thirteen miles per minute, or one mile in four and a half seconds. Hence the pulse of the wrist of a healthy man—which beats nearly once a second—indicates a distance of nearly a quarter of a mile per beat.

(11) The velocity of sound through solids is very much greater than through air. Thus the velocity through fir wood is 17,400 feet (equal to three miles) per second. The scratch of a pin at one end of a piece of timber fifty feet long may be heard distinctly by an ear placed closely to the other end, but could not be heard through the air twelve feet.

(12) The ordinary range of sounds audible to the human ear was stated by Euler to extend from a range of thirty vibrations to 7,552 per second. But Mons. Savart at a later period found it possible to produce audible notes having as few as fourteen or fifteen single vibrations in a second, and up to as many as 48,000.

(13) The intensity of sound varies with the density of the air. Thus it is said that at the top of Mount Blanc, or in a balloon at about that height, the human voice is much weakened, and that the report of a pistol resembles the noise of a boy's popgun, while in a vacuum there is no medium for the transmission of sound—as is proved by the experiment of the bell in the receiver of an air-pump. On the other hand, the compressed air in a diving bell causes even a whisper to be painfully loud.

(14) The intensity of a sound decreases as the square of the distance.

Primary Noises Classified

The general problem of noise is not a simple one. However, the following is an attempt to classify the primary kinds of noise that demand attention:

1. *Road and rail traffic.*
   - (a) Noise due to the condition of the roads.
   - (b) Noise due to the working and running of the vehicles on our roads, railroads and in the tubes.
   - (c) Noise due to the shrieking of railway whistles, and to shunting operations, etc.
2. *Industrial operations in which machinery is used.*
   - (a) Noise due to the running of prime movers.
   - (b) Noise due to transmission machinery.
   - (c) Noise due to the working of machines.
3. *Industrial operations in which machinery is not used.*
   - (a) Noise due to the use of hammers, and other impact tools.
   - (b) Noise due to the handling and movement of materials and work, etc.
4. *Streets and the home.*
   - (a) Noise due to cab whistles and street calls.
   - (b) Noise due to music, etc., in adjacent houses and flats.
   - (c) Noise due to church bells, and to crowing cocks, etc.

The author is not aware of any case in any country in which the engineer has been called upon to design and construct machinery, vehicles and roads, etc., from the standpoint of noise—with the exception perhaps of the machinery for automobiles—but he knows of cases where the noise from factories has been so intolerable to people living nearby that they have applied to the High Court for an injunction, and an engineer has been called in to deal with the nuisance, and has succeeded in greatly reducing noises which to business people and others occupying premises adjacent to the works, reached a degree almost beyond human endurance.

(To be continued)

ASSOCIATION LETTER

By WILLIAM ALFRED SAWYER, Secretary

SOME time ago each member of the Association was sent a statement of a special assessment. Some of the members have taken this statement seriously and responded by sending in not only one new member, but several; others have apparently ignored it. It was ever thus with important matters—the few carry the load for the many, but the interest of the Association demands that each and every member would seriously undertake what he can do to assist in this membership campaign.

One member is not a very heavy assessment. Will you not get busy and try once more to think of someone who should be one of us?

In reading over the Constitution and By-laws, I find that provision is made for associate members as well as active members. Only physicians who are actively engaged in the practice of industrial medicine or surgery, or who are engaged in the investigation of industrial problems shall be eligible for *active* membership. Other *physicians* shall be eligible for associate membership. Associate members have all the privileges of active members except the privilege of holding office and voting

for officers and directors, and for amendments to the Constitution and By-laws.

Please note that associate members must be physicians. Doubtless there are a few in your community who would like to be members of our Association. Will you do what you can to secure someone?

The membership campaign is in full swing.

For ($2.00) two dollars a new member's dues will be paid to May 1, 1922, the end of our fiscal year, or for ($6.00) six dollars, dues will be paid to May 1, 1923. This is a saving of one dollar. Membership in the American Association of Industrial Physicians and Surgeons gives:

(1) Our official journal, THE NATION'S HEALTH, which contains full reports of all the affairs of the Association, together with other interesting articles on industrial medicine.

(2) Bi-monthly abstracts of current industrial medical literature.

(3) Reports and digests of interest to those engaged in industrial work.

This is an every member campaign. Nothing can be accomplished without your help. We cannot reach the mark necessary unless you do your share.

TO OUR PRESENT MEMBERS

Our Constitution provides for active, associate and honorary members.

(a) Active membership is for physicians holding either full or part-time industrial positions, or those engaged in the investigation of industrial problems.

(b) Associate membership is for physicians interested in any phase of industrial medicine. Associate and honorary members are not permitted to vote or hold office. The dues are the same for each.

How many members have you secured? Some have sent in several, others none.

The latter part of January another abstract of industrial medical literature was sent to the membership. If you did not receive yours, please notify the Secretary. With this abstract was a letter regarding the membership campaign, again reminding you that the harvest time for members is at hand, and the Association needs the cooperation of everyone. There has been a generous response thus far, but we need your continued effort. Have you done your part?

If the Association is worth anything to you, it will doubtless be worth something to another. It is surprising how many desire membership in the Association as soon as they hear of it. As there are doubtless hundreds scattered here and there who know nothing of the Association, a word from you may add another member to our ranks.

Don't forget your assessment of one new member. DO IT NOW. If each member gets an additional member, victory is ours. And don't overlook the fact that you may know of some physicians who would be interested in an associate membership.

The Secretary is exerting himself to the utmost to make this campaign a success, and is willing to work still harder. Applications are not exactly pouring in as yet, but they are coming slowly and surely.

Please "step on the gas" and get that one new member and DO IT NOW.

Labor Camp Sanitation in California*

A Program Instituted for the Correction of Slovenly Housekeeping in Camps

BY R. JUSTIN MILLER, ATTORNEY AND EXECUTIVE OFFICER OF THE COMMISSION OF IMMIGRATION AND HOUSING OF CALIFORNIA, SAN FRANCISCO, CAL.

THE Camp Act in California requires that every sleeping place in such camps "shall contain sufficient air space to insure an adequate supply of fresh air for each person" occupying such place. The Commission has interpreted this provision to require an air space of from four hundred to five hundred cubic feet, according to other conditions existing in the camp. Of course in the old days of camps roofed by the open skies there was no problem of air space and ventilation. Even then, however, rigorous climatic conditions made the open air camp impossible in a good many places, and consequently the "old days" also frequently saw dilapidated tents and old barns, stables and henhouses crowded with men, women, and children, to whom fresh air as well as the common decency which goes with reasonable privacy was denied.

Sometimes even today the Commission's camp inspectors run across extreme conditions of this kind. During the last Spring, while the asparagus harvest was at its height in the delta lands of the Sacramento and San Joaquin Rivers, one of the in-

In the old days camps roofed by the open skies at least offered no objectionable stuffiness.

*Part I of this report was published in the November, 1921, issue of THE NATION'S HEALTH.

The platform bed at its best, built continuously around the bunkhouse. In its worst forms the separating boards were eliminated by degrees and long before the end of the season they were filthy and vermin-infested.

spectors found an old dwelling of ten rooms which had been converted into a bunkhouse by a Hindu operator, and which was being occupied by seventy-seven people—men, women, and children. There were eighteen men, fourteen women, and forty-five children living in this building. In Madera County in the San Joaquin Valley an Armenian Camp Operator was convicted and imprisoned for housing fourteen people, men, women, and children, in one room fourteen by sixteen feet in area.

It should be stated in this connection that even where plenty of bunkhouse space is provided, sometimes the workers prefer to crowd into some of the houses and leave others vacant. There is a lesson here to be learned by both the camp operator and the camp employee, and this disregard of sanitation, born of ignorance, which is to be found on the part of many workers, provides a basis upon which some of the less progressive operators attempt to avoid compliance with the law.

Bunks and Beds

The law requires that "suitable bunks or beds shall be provided for all employees. Such bunks or beds shall be steel, canvas or other sanitary material, and shall be so constructed as to afford reasonable comfort to the person occupying same." These accommodations must be furnished free of charge. The camp operators very generally prefer metal beds because of the tendency of some of the workers to break up wooden beds or cots and to steal canvas beds to use as a covering for their "bundles."

One of the worst evils of the old time bunkhouse, was the "platform" bed, characteristic of the "flop-house" type of camp. The platform bed consisted of a continuous platform built, frequently, all the way around the bunkhouse, sometimes without even board partitions and filled with straw. In some cases there was not even a platform; the straw being piled on the ground and held in place by a twelve-inch board at the foot of the bed. The illustration given of this type of bed shows it at its best. It was too often marked by the elimination by degrees of even the foot board. These beds quickly became infested with vermin; it was impossible to keep them clean and, long before the end of a season, they were in a filthy condition. The men who occupied them were either long-suffering or lacking in the first principles of self-respect and they usually added to the filth by contributions of papers, old clothing, shoes, tobacco containers and other wreckage.

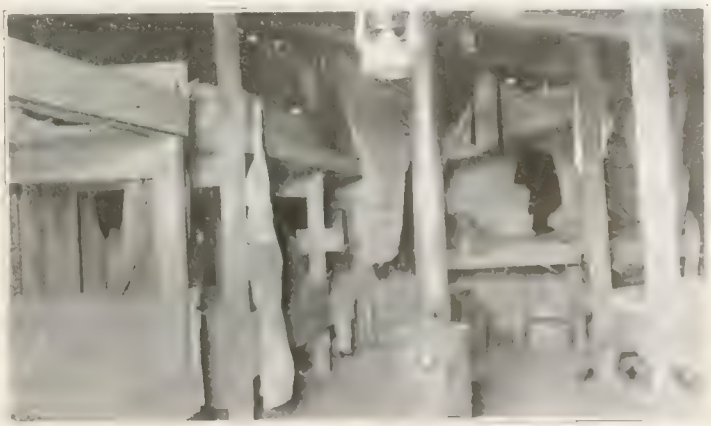
Another bad feature of these bunkhouses was what is called the double-deck bed and the triple-deck bed. One such bunkhouse inspected had thirteen occupants, each having approximately one hundred forty cubic feet of air space instead of the required five hundred.

The days of double-deck beds and crowded quarters are about gone and it is a pleasure to note the conditions which prevail generally today. In place of the ramshackle old barn and the dilapidated tent, we now find bunkhouses of a better type, with single-deck beds properly spaced at least twenty inches apart. Of course many of the larger camps maintain bunkhouses with standard beds and equipment of the type familiar to everyone, but even the poorer more isolated outfits are complying with the law and providing sanitary facilities.

The law does not require that mattresses or other bedding be furnished free of charge, but if the worker requests such accommodations then the operator is required to furnish them and is allowed to make a reasonable charge therefor, deducting the amount from wages if necessary. This last provision has only recently been added to the law, but even prior to that time many operators voluntarily furnished such accommodations. This is only one of many evidences of the fine spirit which has been shown by the higher class operators throughout the state.

Food—Cooking and Serving

One of the most important features of the labor camps is the equipment provided for the storing, preparing and serving of food; the "cookhouse" or the "cooktent," as it is generally known among the workers. The kind of food used and the way in which it is served may be sufficient in itself to determine whether there will be a contented efficient crew or a grumbling inefficient one. In the temporary camps, where equipment is reduced to a minimum and in isolated places where food must be brought from a long distance the problem becomes very difficult. Two of the most vivid and pungent memories of the



The double-deck bed and even beds triple-deck were features in some bunkhouses, always connected with overcrowding and deficient ventilation.

cookhouse of ten years ago are the odor of bad meat, and the *odor* of flies. Some people perhaps do not know that there is any odor about flies, but the nauseating stench which accompanies them where they exist in large numbers will never be forgotten by one who has lived and *eaten* among them. The loose-boarded, unbattened and unscreened cookhouse and the open cooktent were of course ideal locations for spoiled food and fly-breeding. The already low "morale" of the camp cook did not usually long survive the first warm days; he soon began to contribute to the general disorder and filth. It is very probable that many an office camp operator who prided himself on the high quality of food which he sent out to his camps was painfully surprised when he chanced to see the condition in which it was served. The photographs are shown of the cook's own domain in the rear of a highway construction cooktent, and of the old "cook-wagon" which was a familiar sight of the old days, especially in connection with haybaling and threshing crews. This wagon usually constituted not only the cookhouse, but the residence of the cook and his family as well. The paraphernalia hanging on and scattered around the wagon indicates that it was well equipped for light housekeeping, even though it may not have been just the best outfit for the storage and preparation of food for a crew of men.

In the vineyards and fruit camps where only temporary protection from the sun was attempted it was very usual to find camps in which large numbers of families are employed and in which men, women, and children of all nationalities and ages are thrown together. If proper facilities are not provided, the bad results are immediate and obvious.

The last legislature has added a provision to this section of the law which will do much to correct slovenly housekeeping in the camps, and will also eliminate the cracked, chipped, bent and broken crockery and cutlery which tends to accumulate. The best feature of this and other requirements designed to improve dining facilities is that it is resulting in an increasingly higher standard of living among the men themselves, and the "rough-neck" who used to shovel the scraps from his plate between his knees onto the floor is now very quickly disciplined by the cook or by the other men.

Bathing Facilities

Under date of June 19th, 1920, a letter was received from a camp operator in one of the northern coast counties of the state which reads in part as follows:

I received your notice in due time and would like to ask a few questions in regard to the requirements. I don't know how I could install a shower bath in my camp ground. I have three good hand pumps for drinking water. The Indians wouldn't use a shower bath if they had a dozen. I am on the banks of a good running stream and they could take a bath as many times as they want to. . . . their aint one family in ten thousand that has a shower. I never had one in my life and *I am just as strong as you are.* . . .

The Commission's answer on this point went back by return mail as follows:

. . . The law requires that adequate bathing facilities must be provided at every labor camp. A running stream of water does not constitute adequate bathing facilities for several reasons. In the first place, the cold water of a running stream is not particularly conducive to cleanliness nor is it particularly convenient for taking a bath. In the second place there is hardly that degree of privacy attached to bathing oneself in a running stream which runs right beside the camp which the law would interpret as constituting either adequacy or comfort.

The cook's own domain in the rear of a highway construction cook tent.

Your statement, "The Indians wouldn't use a shower bath if they had a dozen," sounds so remarkably like the same statement which has been applied to practically every other type of laboring man in California several hundred times that we are beginning to wonder just how the labor camp operators of California have become so thoroughly advised on the manners and customs of these people. Our wonder continues to grow when in every case that showers are installed, the laborers begin to take their baths, and we have many letters on file in our camp department records wherein employers who at first believed just as you do, have voluntarily admitted that they didn't know what they were talking about, and that the laborers would stand in line waiting their turn to take a bath.

The only other alternative to shower baths which would satisfy the law are tub baths. Tub baths are much less sanitary than are showers and it is true that laboring men generally will not use tubs as freely as they will showers. For this reason, and for the further reason that it is much cheaper to install and to maintain showers, our inspectors have been instructed to recommend the installation of shower baths. The "shower head" is an inexpensive affair and as a temporary measure you can make one by punching holes in the bottom of an oil can until the shower head which you order shall have arrived at your place. Then you can put a barrel upon three poles, fill it with warm water and you have a complete outfit. Of course it would be far simpler for you to attach a hose to the shower head and to run water through it. The methods that I am suggesting are merely tem-

The double and triple bed has been superseded in most of the better camps by beds placed as shown in this lay-out, where the beds are at least twenty inches apart, the rooms clean and airy.

This cook wagon is typical of the old days. The paraphernalia about the place shows that it is better equipped for light housekeeping on the part of the cook and he knows what for the storage and handling of food.

porary ones and indicate the ease and lack of expense which are attendant upon the installation of facilities of this character. If you cannot find a plumber in Ukiah who can install a shower for you, our inspector will be glad to give you full information about the subject when he next comes to see you. It will be necessary, however, for you to comply with the law in this respect.

This illustration is typical of many and tells in part the story of bathing facilities in the labor camps. Of course some operators did not even provide "good running streams" and some have been forced to use tubs because of lack of sufficient water for showers. In the main, however, the shower-bath is a permanent and popular institution.

Section four of the California Camp Sanitation Act reads in part as follows:

For every such camp there shall be provided convenient and suitable privy or other toilet facilities, which shall be kept in a clean and sanitary state. A privy other than a water-closet shall consist of a pit at least two feet deep, with suitable shelter over same, and the openings of the shelter and pit shall be enclosed by screening or other suitable fly netting. No privy pit shall be filled with excreta to nearer than one foot from the surface of the ground and the excreta in the pit shall be covered with earth, ashes, lime or other similar substance.

To tell the story of the toilet facilities provided in the days before the Act went into effect would be merely to compile details of filth and insanitation. In those days the presence of a crew in any neighborhood meant that before long every fence corner, creek bottom, excavation, tunnel, rear of barns or other buildings would become shambles and breeding places for flies and disease. Sometimes a burlap shack was erected and a scantling nailed across two uprights. This was even safer in those days than wooden buildings equipped with cross boards and individual holes because the latter type of toilet merely served as a more aggravated collector of excreta and filth. There are instances on record where these toilets were also used as garbage containers and were sometimes filled with entrails of animals butchered in camp. The very fact that the burlap shack was temporary in character inspired its transportation to a new location occasionally, while the permanency of the others kept them in use to the bitter end. The old wooden toilets were open and exposed for fly-breeding, and in some instances where they were located on banks of streams they contributed directly to epidemics of water borne diseases.

The Commission has prepared specifications on toilet construction and insists on a rigid compliance with the provisions of the law in this particular. The Commission also interprets the law as requiring separate toilets for men and women, separately placed and properly marked.

Closely allied to the problem of insanitary toilets is the disposal of garbage, [illegible] sufficient wastes. Many a countryside has been permanently defaced by piles of old cans, boxes, cartons and bottles, even after the storms and snows of winter have removed all traces of other wastes.

It is comparatively simple to meet the situation with covered receptacles the contents of which are emptied daily and either buried at a distance or burned in an incinerator. When camps are located on old ranches or when work animals are used in connection with the job, the problem of garbage and waste disposal is frequently complicated by the presence of large quantities of manure. One may visualize in terms of flies the result of establishing a camp in too close proximity to the corral. Of course there are two possible remedies in this case: one the removal of the manure and the other the removal of the camp.

Drainage and Sewage

Many of the kitchen wastes are in liquid form, which require more than covered cans for their disposal. This is true also of the waste from the bath-houses, wash-houses and from flush-toilets where they are used. When the camp operator is allowed to work out his own ideas of drainage and sewage disposal, the result oftentimes is the appearance of long, open, ill-smelling ditches and stagnant pools lined with refuse and breeding flies and mosquitoes. The solution in this case is found of course in a covered drain or pipe leading to a covered cesspool or in more permanent camps to a septic tank, a filter system or a chlorinator.

Where Responsibility Attaches

A labor camp laid out along the lines heretofore described may be a model plant today and a very disreputable establishment next week if

This picture tells the story of [illegible] seen the interior of a [illegible] ground in the lower left [illegible]

care is not given to its upkeep. The law would be a failure if there could be any doubt as to the persons responsible for securing compliance with its provisions. If it were possible for the owner to shift the burden to his lessee, the lessee to the contractor, the contractor to his superintendent and he to the employees, the result would be to negative the provisions of the law. Consequently it is made the duty of every "person, firm, corporation, agent or officer of a firm or corporation employing persons to work in or at camps to which the provisions of this act apply and the superintendent or overseer in charge of the work in or at such camps, to carry out the provisions of this act." And it is further required by the law that the responsible parties shall "appoint a responsible person to assist in keeping the camp clean." This work has now become one of the standard duties of the "bull-cook" and his helpers. Although the law fixes the responsibility in the operator, the Commission recognizes the necessity of developing cooperation on the part of the employees. Cards, bearing rules for camp sanitation, are furnished to operators to be posted about the camp. It has been found that workers of the better type go to the better camps, and generally speaking show a real pride in helping to preserve the higher standards.

The Commission of Immigration and Housing is expressly directed to administer the act and to secure the enforcement of its provisions. For that purpose its inspectors are given wide powers of inspection, together with police power sufficient to carry out the penal provisions of the act. In the vast majority of cases it is not necessary to commence criminal action, although in cases of emergency, the use of a well placed fine or sentence of imprisonment has been found useful. This is true not only for its effect upon the individual defendant, but upon others of the same type in the neighborhood. In fact it has been found that drastic action against one especially flagrant violator of the law may have a very salutary effect upon many other operators in the same industry even in remote parts of the state.

The act also permits the abatement of camps as public nuisances, but this remedy has never been invoked up to the present time. The Commission is anxious to help rather than to harass the men who are carrying on industries, and the closing of camps would seriously delay operations. The method of procedure by criminal process is far more expeditious and does not in any way interfere with the progress of industry. The provision in the act is desirable, however, as conditions in a camp might become such a menace to health as to require the abatement of the whole plant.

The method of enforcement of the law has developed slowly and has been based largely upon a policy of education. The inspectors are assigned to more or less definite sections of the state. They travel about from place to place, following the "seasons" and checking up on the conditions which they find. Their reports are sent in to the main office and letters are then sent out to the operators instructing them as to the changes which must be made to comply with the law, or in case of a sanitary camp, thanking the operator for his cooperation. In the case of a new operator, a copy of the Commission's Advisory Pamphlet on Camp Sanitation is sent to him. This pamphlet contains very complete instructions on the construction and maintenance of camps with diagrams and specifications covering all necessary phases of construction. The pamphlet has become so well known that many copies are sent out on request, not only to operators in California, but to large national organizations interested in camp construction.

Many times before the opening of a particular "season" the representatives of the Commission are called upon to address growers associations, farm bureau meetings and similar organizations, in order that proper plans and arrangements may be made. As the employees, on the other side, lack organizations it is generally impossible to meet them except in the camps. However, the camp laborer of California is well acquainted with the work of the Commission and calls upon it several hundred times a year for assistance. Many times these calls come in the form of anonymous letters. Sometimes they are inspired more by spite than by real grievances, but in every case the complaint is investigated and the identity of the complainant is never divulged. This has resulted in bringing in an increasing amount of information about insanitary camps. The following letter is typical:

"5-24-21.

"Housing Commission:

"Dear Sirs:

"There is a camp run by the ———— Construction Company at ———— in an unsanitary condition. Sleeping tents are overcrowded and without floors. There is no bathhouse, toilet not screened. The best time to investigate this camp is 5 o'clock p.m. as the men will be all here. Hoping you will investigate this as soon as possible,

"I am yours,
"For Sanitary Conditions."

The inspections, which follow complaints of this character, constitute only a small part of the total, and as a matter of fact four men are constantly at work. After the first inspection, if conditions warrant it, a reinspection is made. In the mean-

The interior of a warm weather camp with open screened sides. Pans of water under the table legs discourage the ants.

time instructions have been sent out from the main office at San Francisco, and if those instructions have not been complied with the case becomes a special order. If the operator shows a willingness to comply he is assisted and encouraged in doing so, and it is only in extreme cases that arbitrary action is taken.

The results obtained have been exceptionally good. The camp operators and employees alike are generally enthusiastic over this branch of the Commission's work and many letters are on file expressing appreciation for the assistance and instruction which has been given. The spirit of cooperation on the part of the employees has shown itself in increased efficiency and substantially reduced labor turnover. It is of course impossible to measure the results from a health standpoint, except to say that the improved sanitary conditions, in the light of what we know of the causes of disease and its spread, have undoubtedly contributed in a material degree to the state's improved health conditions.

The results have been nowhere more marked than in those cases,

The type of camp kitchen and dining quarters for which the California Commission is becoming well known and which is now common in the state.

few in number as yet it is true, in which the camp operators have gone beyond the requirements of the law and have built little cities of single family dwellings for their workers. The great weakness of the bunkhouse system is that it attracts the single man and continues the single man idea in industry. What California needs, especially in agriculture, is the encouragement of the family-man employee. This is being done to some extent and with very good results. The contrast between the squalid living conditions of the Mexican worker in a bunkhouse or in his own shack, and his condition in a little home furnished by his employer is one which can be appreciated only by seeing it. Among the citrus associations of the state the custom of building camps of this kind is a growing one and it has prevailed for some time in the lumber, mining, and oil camps.

The Physician and Workmen's Compensation*

Subjective and Objective Reactions in This Complicated Relationship

By GEORGE E. TUCKER, M.D., Medical Director, Aetna Life Insurance Company, Hartford, Conn.

THE increasing interest in the medical administration of Workmen's Compensation Laws is evidenced by so many different important objective signs that the subjective symptoms might properly be ignored if they were not so forcefully over-emphasized.

The objective signs most easily recognized are:

(1) The large number of Amendments to the medical provisions of compensation laws that have been adopted in the several states during the recent sessions of the legislatures.

(2) The complete change of attitude on the part of the public, employers, and employees toward adequate and competent medical, surgical, and hospital treatment of workers injured in industry.

(3) The efforts of Compensation Commissioners so to administer the laws as to encourage proper treatment of all injuries and to discourage payment of cash benefits in lieu of medical benefits.

(4) The emphasis that is now placed upon restoration of function and earning power, or rehabilitation.

The subjective signs of interest in the problem under discussion are the number of papers written, the opinions voiced by interested partisans as to details of proper administration, treatment, choice of physicians and other controversial features of medical administration.

Since physicians are trained to take histories, make examinations, weigh signs and symptoms, and make deductions in order to arrive at a diagnosis, prescribe treatment and go on record as to prognosis, perhaps the same method may advantageously be employed to present the case of the physician and Workmen's Compensation Laws.

The antecedents of our compensation laws in the United States were not unusually healthy. They suffered

Hundred per cent earning power constitutes a much greater stimulus to good citizenship than does a limited two-thirds of wage pension and we will not believe that many American workers are ready to exchange their ability to work for any cash benefits that may accompany semi-invalidism and dependency under a compensation law.

A program that would deserve the indorsement and enthusiastic support of medical men is one that would furnish the services of skilled specialists as a preventive as well as curative measure and would employ modern diagnostic, therapeutic, and educational agencies for the rehabilitation of workers suffering from dismemberment or functional handicaps.

*Read before the New York State Association of Industrial Physicians, Syracuse, N. Y., December, 1921.

from numerous complaints that were readily transmissible, with the result that their progeny were not free from sundry and serious defects at birth.

The paternal ancestors migrated from Europe, being of mixed blood —largely German, English, and French. The maternal line was, at least for several generations, of native birth, but for many years not in good standing.

In other words, our early compensation laws were patterned after the German, English, French, and other European laws, with a trace of our Employers' Liability, or master and servant theory written into them.

Personal History

There is an almost uniform agreement by legislators and parties at interest as to the purpose of Workmen's Compensation, both in Europe and in the United States. One would therefore conclude, without investigation, that there must be a corresponding uniformity in legislative provisions. On the contrary, even at this time, there is a wide difference of compensation standards in adjoining states, where those differences of industrial conditions that might affect requirements do not obtain.

If any possibility of uniformity of legislation in this country existed early in the enactment of compensation laws, such a possibility seems to be becoming progressively more remote. In fact Federal legislation, which would affect all states alike now seems like a development which is entirely outside the realms of probability. The inability to arrive at a satisfactory standard is presumably explained by the erroneous belief, now generally held, that there are marked differences in industrial and other conditions across state boundary lines.

It would be interesting, at least, to observe the results of an experiment which would apply the same compensation law in Massachusetts and Connecticut, or in New York and New Jersey, or in Illinois and Indiana. If the reactions were to prove essentially different and if society, including employer and employee, were, in consequence, to suffer or benefit differently across border lines, a wonderful field for social economic research would have been found—and the problem might properly be assigned to college professors for solution.

As physicians, however, and particularly as industrial physicians, our immediate interest is focused on those compensation provisions which relate to medical aid and it is to this phase of legislation and administration that we must give our attention in this discussion today.

As late a study of this subject as is represented by the most recent publication of the United States Bureau of Labor Statistics[1] shows that of twenty European Acts reviewed (excluding the fifteen British Acts) eight have provided for limited medical aid or for none, eleven for unlimited aid, and one for unlimited after four weeks. Of the fifteen British Acts, thirteen make no provision for medical benefits.

If the fundamental promise actuating the passage of compensation laws and the discarding of right of action in accordance with employers' liability is sound, and if the burden of the employed who sustain accidental injuries—or as provided in some states, any injuries—arising out of and in the course of their employment, is to be distributed to the consumer through the employer as an added cost of production, then it would seem to follow that there would be uniform agreement that injured workers should be relieved of the cost incident to furnishing adequate first aid, intermediate and rehabilitating medical, surgical and hospital treatment.

Workers in industry exchange physical and mental effort for wages. In the case of workers who sustain injuries of some seriousness during employment there enters into production a temporary sacrifice of time, income, comfort, and physical efficiency. The public or beneficiaries of those efforts and sacrifices may, therefore, properly be called upon to meet the pro-rata and fair cost necessary to reimburse those benefactors for their loss of time and income, for their suffering and for the expense of such treatment as is needed to restore them, if possible, to their previous condition of mental and physical efficiency and earning power.

In spite of the apparent justice of this claim for equity and fairness as it affects both the injured and the consumer in the United States, of the forty-two states having compensation laws, but two have fully recognized it. Two others recognize it in part, and the others provide for limited medical aid or none, the limitations affecting time or money cost, or both.

The frequency of injuries resulting in dismemberment and the easy visualization of the immediate handicap that such injured workers suffer should provoke sufficient public sympathy to bring about the incorporation, in every law, of a provision that will supply artificial members for such cases. But few states have such a provision and I will not undertake to offer an explanation for the legislative apathy, indifference, or poor conception of the real purpose of medical aid that has deterred such action.

Among legislators—and more to our shame, even among physicians—when medical aid provisions have been considered, palliation instead of restoration has been allowed to become the object of their efforts. The result has been that families are too frequently deprived of the support of their wage earners, an actual asset to society is permitted to become a liability and an otherwise profitable producer deteriorates into a helpless, consuming parasite.

Physicians and other parties interested in the compensation form of social relief in this country have made careful observations of the operation of compensation laws over a period of ten years. Their observations should have provided such incontrovertible evidence of the need for the continued broadening of the scope of medical treatment of injured workers, that the examples of unlimited medical aid, including artificial members, set by California in the West and Connecticut in the East, should have been followed by the other forty so-called compensation states in order that such states might conform to their standards of social justice and good business economy.

Legislators, however, must give consideration to the problem of acquiring votes and of retaining voting support with the result that their measure of legislative success is in part measured by a vote-getting standard. Physicians, on the other hand, if they would be successful, must attend to the problem of establishing and maintaining a professional reputation and to the equally important problem of commanding profitable financial return for their services. If the rewards necessary to bring the observations and information from the one group to the other were offered in their customary medium of exchange, the lure would have brought early response and more uniform legislation would have followed.

If you as a physician were delegated to provide that treatment to an injured worker suffering from a simple fracture of the neck of the femur

1. Bulletin No. 126: Workmen's Compensation Acts of the United States and Foreign Countries.

that would insure his recovery in a minimum of time with a maximum of functional restoration, would not a time limit of seven to thirty days, or a cost limit of twenty-five dollars to one hundred dollars operate to discourage both you and your patient? And would not the problem of meeting necessary economies and of providing adequate and proper treatment within those limits, take precedence over the question of how to restore that worker to full earning capacity?

The limitation of weekly cash benefits has not as a matter of fact, generally been so restricted. The measure of ultimate costs, therefore, resolves itself into a consideration of unlimited restoration expense as against prolonged payment of cash benefits, and no difficulty need be encountered in successfully defending the proper medical attitude.

Health and Social Stimulus

Hundred per cent earning power constitutes a much greater stimulus to good citizenship than does a time limited two-thirds of wage pension, and we will not believe that many American workers are ready to exchange their ability to work for any cash benefits that may accompany semi-invalidism and dependency under a compensation law.

A program that would deserve the indorsement and most enthusiastic support of medical men is one that would furnish the following:

Immediate and intelligent first aid treatment for all cases of minor injuries.

Proper treatment of minor and major injuries of moderate severity.

The services of skilled specialists as a preventive as well as a curative measure.

The employment of modern diagnostic, therapeutic, and educational agencies for the rehabilitation of workers suffering from dismemberment or functional handicaps.

Many definite and practical benefits would follow the fulfillment of this program. The wastage of absenteeism and labor turnover would be reduced. Production would be increased and production costs would be lessened. Otherwise discarded human units would be salvaged. Mendicancy would be discouraged and the potential productivity of the injured American workmen would be afforded another opportunity to express itself in increased effort and added accomplishments.

And, if this reward were not sufficient, in many instances there are the added benefits which would come unquestionably through the continued maintenance of the homes of those restored workers, through the education of their children and by reason of their contribution to the welfare, prosperity, and happiness of their fellowmen, their community, their state, and their country.

The anti-climax to the pronouncement of this ideal we might classify as constituting the subjective symptoms of interest in our subject. They arise out of the discussions of medical fees, the relative merits of different therapeutic procedures, the right of choice of physicians, the field of the general surgeon and the orthopedist, the opthalmologist and the optician, the neurologist and the psychiatrist, the general practitioner and the specialist. The operating theory that has established physicians fees for the care of compensation cases has been predicated upon the assumption that the law was enacted for the benefit of those workers who come within its scope and for the benefit of society as a whole.

No emphasis, however, has been placed upon the need either for enacting or for administering the law so as to reflect a substantial financial benefit to the medical profession. On the other hand, no one knows of an instance where either compensation legislation or its administration has been designed to deprive physicians of any part of the income they previously enjoyed from the care of the same class of cases from among workers of the same relative income and similar financial responsibilities. Let it be shown that a greater benefit can be derived from more liberal allowances for medical fees, that insurance premium rates can be loaded to meet the necessary additional expenditures which would ensue and proper legislation will follow.

Any one privileged to review large numbers of compensation claims and charged with the responsibility of selecting men and institutions to treat claimants, would, I believe, make the choice primarily from among qualified ethical practitioners who obtain fairly uniform and satisfactory results. One would seldom question the methods or agencies utilized to obtain such results. It is not a question of *how* but *who* in a community can promptly restore flat feet, or remove embedded foreign bodies from the cornea leaving a minimum of after scar, interference with vision, or other complications.

Industrial medicine and industrial surgery are as distinctly specialties within a group of specialties, as are brain surgery, gynecology, and orthopedics specialties within the field of general surgery.

The average layman, especially a sick layman, generally selects his physician for purely irrelevant reasons, but quite the contrary is the case when a physician selects a medical or surgical attendant, or more often a group of medical or surgical attendants, to treat a member of his family or himself. Education, previous training, and experience are most carefully weighed and a group of consultants is not infrequently asked to make the selection of a specialist when highly skilled services are required.

Differential Diagnosis

The objective signs revealed by our examination show conditions so much more serious than those apparent from the subjective symptoms that we may safely eliminate certain possibilities from consideration. Since there is no uniformity in methods of administering compensation laws by industrial accident commissioners, it follows that of the several plans, some must be better than others. Ultimately, too, those having the responsibility will adopt methods which will improve their general results. The limitations of those improvements will be influenced by the provisions of the Act under which they operate, which leads us back to the original fault in the compensation plan for social relief that is, the imperfect understanding of its purpose by legislators and the faulty provisions that have been allowed to creep in.

The proper rating of permanent disabilities seem to be the most difficult problem falling to Industrial Commissioners for solution, and although one state has a fairly satisfactory plan, infinitely better than that of any other at present in operation, there seems to be some unexplainable hesitancy on the part of other states to adopt it.

If both the author's attitude and the previous statements and findings in this paper are sound, whatever shortcomings there are in the results obtained from the application of the compensation principle in this country and the part taken by physicians in connection with its operation may be attributed to faulty legislation and misunderstandings, and the cure will follow further study, investigation, education, and legislative amendments.

As physicians, we know that it is unsafe to prognosticate, but we may predict that if members of the medical profession will wisely interest themselves in the worker, the employer, and the body politic (being careful always jealously to guard the reputation which the profession has uniformly had—namely that its members will not under any circumstances prostitute their opportunities for service to the community to the furtherance of their own advantages), if they will intelligently gather information and place it before the proper parties at interest, if they will assist instead of resist, if they will criticize constructively instead of destructively and make their voices heard at the proper time and in the proper place, we may confidently look forward to the adoption of those changes in legislative provisions, particularly medical provisions, necessary to bring the greatest good to the greatest number.

Treatment Not Palliation

Palliative measures administered at regular intervals and directed toward relieving the symptomatology will, like a narcotic, obscure the real pathology and mislead the anxious bedside watchers. Genuine and permanent relief, however, will come from the employment of radical surgery and its application to compensation laws, from cutting out dead tissues wherever found, performing a debridement, so to speak, and the transplantation of live parts from healthy subjects.

Payment of cash benefits in amounts sufficient to reward idleness and penalize effort contributes to the moral delinquency of susceptibles and creates an immoral hazard against which neither state nor private interests can successfully insure. When the difference between full wage combined with a reasonable day's work, and two-thirds of wages combined with no work, amounts to so small a sum that the principal incentive to produce is removed, then we may expect the predominant human weakness—that is the irresistable impulse or temptation to get something for nothing—to assert itself. On the other hand, if cash benefits are so niggardly that they fail to accomplish the primary object for which they are intended, if they need to be supplemented from savings which do not—and in too many instances could not—exist, or if the benefits must be supplemented by charity, then their very purpose is defeated and no permanent good will result.

To reflect real benefit to industry, society, and workers, cash payments must be sufficient to insure a reasonable amount of food, clothing and a comfortable shelter for those injured and for their dependents. The necessity of suddenly precipitating wives and immature children into industry should be avoided, in order that society and the family unit may derive those benefits that come from the activities of women in the home and from the educational advantage that come to children in school.

If it can be shown that business interests of an essentially industrial state with large manufacturing payrolls have not, by reason of the enactment of legislation that provides unlimited medical aid for injured workers, suffered any handicap in competition with similar interests in an adjoining state where the medical provisions of the Compensation Law are less liberal in scope, the weakness of one of the most useful and most freely used arguments against unlimited medical benefits will have been demonstrated.

If those cases of injury requiring special care and treatment are permitted to receive such attention in amounts no less adequate and in kind no less skillful than they enjoyed in free public hospitals at the hands of clinical staffs before compensation laws were passed, and if the same care and judgment will be exercised in the assignment of cases that was evidenced by the receiving staff of those same institutions, then and then only may we feel that they will receive the assistance then obtained during the presumably barbarous days of public disinterest and apathy.

Industrial physicians will protect their group of workers and ultimately other similarly interested parties will just as zealously and certainly afford the same protection to their own groups, so that finally the spirit that medical men, as well as employers and employees, can most profitably demonstrate toward social relief and social betterment, will place interest above indifference, industry above idleness, fairness above injustice, intelligence above intolerance, and service above self.

A Remarkable Surgical Service

A SURGICAL service giving, through centrally located clinics, full time, free treatment to workers all over the country who sustain industrial accidents, treatment rendered by highly specialized industrial surgeons, supported by a body of the leading nerve, eye, heart, and orthopedic men of the Nation—that is the aim of the Liberty Mutual Insurance Company in establishing and maintaining its chain of surgical dispensaries, according to an interview given to THE NATION'S HEALTH by George W. Morse, M.D., acting Medical Director of that Company and head of its surgical work.

Established in 1913, when its home

X-ray examination is a routine procedure in cases demanding it, both for purposes of diagnosis and for checking progress. In certain cases the pictorial record is the best possible report of progress and final result.

Good results follow consistent care. In the interest of rehabilitating the injured workman, treatment is extended for the full period of disability despite the time limitations permitted under the law in Massachusetts.

office clinic was opened in Boston, Mass., this unique service in which the Liberty Mutual was the pioneer, has grown from 4,084 treatments the first year to 58,193 treatments in 1920. This service is given without a penny of cost to the injured employees of its assured, and without regard for the statutory limits of medical treatment provided by the Workmen's Compensation Acts of the various states. "During my ten years of work with the Liberty Mutual Insurance Company," said Dr. Morse, "I have seen the Medical Department grow from a small clinic of two or three patients a day to one where hundreds of patients are advised, treated and sent back to work every day."

A Change of Attitude

When the Liberty Mutual Insurance Company opened its first clinic in a small apartment located some distance from the main offices of the Company, the few injured men who came there did so because they were told to by their employers. They were skeptical about everything. Too often they distrusted the doctor and had the idea that he was in league with the insurance company to beat them out of their just compensation. Time after time men would be sent to the clinic, where treatment would be given by doctors well trained in surgical work, who were graduates of the best schools and the best hospitals and, after receiving the treatment, they would go to the doctor near their factory usually a man of little or no surgical experience—who would take off the dressings and advise the patient to stay at home under his care.

In order to eliminate this element of distrust among the injured, it was essential to make the treatment afforded by the Company the best that could be obtained. Service was the slogan. No patient treated was given a chance to tell his fellow workmen that he did not get the best of treatment. In this way it gradually came about that in nearly every room of every plant insured by the Liberty Mutual there was at least one man whose lasting friendship had been won by the Medical Department of the Company, and who advised each injured man to go there. Gradually the attitude has been changed. The clinic grew to such proportions that it became necessary to open others and the present chain of clinics gradually evolved.

"The attitude of the general practitioner toward this supplementary service has changed also," said Dr. Morse. "In this age of specialism the general practitioner has learned, sometimes by costly experience, that oftentimes in cases of sepsis, tendon suture, and fractures, special facilities are required to obtain satisfactory results. The requirements of medical practice under Workmen's Compensation have necessitated more complete records on the part of the physician and consequently a better check on the results obtained. There is no way of checking up how many avoidable sacrifices of members could be charged to neglect or to errors of judgment in the past, but the influence of careful record keeping and the certainty of a minute review of the conduct of compensation cases is conducive to more precise work on the part of the attending physician and, rather than err in technic or judgment, such revision prompts the general practitioner to avail himself of the special assistance that better medical organization under Workmen's Compensation has made possible."

This improvement has affected the medical personnel of insurance companies as well. Originally the insurance doctor, so-called, was looked at askance by the medical profession as a whole and everything he did was subjected to suspicious scrutiny. The requirements of Workmen's Compensation have evolved for the insurance

Physiotherapy has proved a valuable adjunct to the restorative measures employed. The equipment is complete and up to the minute.

doctor a definite and important function in the community. The old causes of adverse criticism, fundamentally a misunderstanding on the part of the profession at large of the attitude of the insurance company, has given way before their collaborated effort.

Under present conditions, requiring their mutual activity, many defects in medical organization have been remedied. Unbelievable conditions resulting from neglect and ignorance under the old system were brought out in the early days of compensation. Infections were neglected until amputation was the only recourse. Tendons were left unsutured and the injured members hopelessly crippled by delay or mismanagement. Fractures were not recognized,—all this sometimes from lack of skill on the part of the attending physician, but oftener for lack of facilities which are now available and have come to be regarded as essential.

Another striking defect of ante-compensation days was the dearth of records kept by the medical profession. Time after time the records necessary in a given case were lacking. These conditions have changed and it is now the exception to find a full report lacking when it is required. Accurate, even pictorial records are usually available, and in most cases evidence of consistent care is manifest in the collaborated effort of several specialists in difficult cases.

In order to influence the injured workman to go to the clinics, the Liberty Mutual not only offers the best of treatment, but free treatment is given for the entire period of disability, although in Massachusetts only two weeks' treatment was obligatory under the Act. As every day of disability meant a loss of compensation to the Company, and as every finger or hand lost meant additional loss to the Company, it was the business of the Medical Department to see to it that every case received the best possible treatment and the concise records in the claim folders of each case revealed at once to the officials of the Company, the employer, the Industrial Accident Board, as well as to the man himself, any cases where bad results were obtained.

As every doctor in the clinic knew that his records of the case would probably receive the visé of many critics, it tended to make him careful to do his very best for each man. Moreover, if he gave an opinion, he knew that there would come a time when he would have to substantiate it with his reasons for it. These factors tended to make the average doctor even more careful than the training in the out-patient departments of the big hospitals.

Having gone through the various phases of training, the Liberty Mutual now has a large floor in its home office building devoted to the clinic. The clinic is open from 8:00 a. m. to 6:00 p. m. Doctors and nurses experienced in this work are in attendance during this period, and accurate records are kept.

In connection with the clinic room there is an x-ray room, and a room for baking and massage, as well as consulting rooms, and rooms for sterilization, etc. The staff is made up of the medical director, who acts as a consultant and administrator, five doctors who are on clinic for two hours each during the day, a nurse, a roentgenologist, a masseuse, and the necessary stenographers and record clerks.

The department also has a consulting orthopedist, an eye specialist, a nose and throat specialist, a skin specialist, a neurologist, and a man trained in the field of industrial poisoning.

Supplementary to the clinic at the home office, the Liberty Mutual has arrangements with the Brooks Hospital, one of the finest private hospitals in the country, where cases requiring operation and hospital care may be sent to receive all the advantages of an up to date, modern hospital. This hospital has been a great asset to the Company, as the injured employees have been pleased with their treatment and the results so uniformly satisfactory that all remnants of distrust have been dissipated. In other words, during the last ten years the treatment of injured employees has been wonderfully improved, the period of disability has been shortened and the workmen have learned that the company's aim is their aim; that it is the aim of both to prevent accidents and, if accidents happen, to get the best treatment, the best results, and get the employee back to work as soon as possible.

The treatments at surgical departments each consecutive year ending December 31 show the growth of the clinic, as follows: 1913, 4,084; 1914, 5,063; 1915, 8,994; 1916, 15,894; 1917, 23,475; 1918; 25,818; 1919, 53,368; 1920, 58,193.

The aim of the Medical Department is to shorten the period of disability and to restore the man's earning capacity as soon as possible. It is the policy of the Company to pay for the treatment which will do away with the man's disability, rather than to pay the injured man compensation for a long period.

Recent Compensation Decisions

THE California District Court of Appeal April 27, 1921, has also passed upon the matter of the liability of the hospital for the negligence of its servants. The case is not given in full, but part of the opinion is cited.

The defendant was a corporation commonly known as the French Hospital of San Francisco. The hospital appealed from a judgment after a verdict in favor of the plaintiff, which was rendered in an action brought by the plaintiff to recover damages for the death of his infant child. These damages were caused, it is alleged, by the child's being fatally burned while an inmate and under care of the hospital and is predicated upon the alleged carelessness and negligence of one of the student nurses of the hospital who was placed in charge of the child by the hospital superintendent. The trial was by a jury, which rendered a verdict in plaintiff's favor in the sum of $5,134.

The child was ill with bronchial pneumonia probably induced by influenza. Oxygen was being administered and the child was cyanotic. The mother remained with the child and before leaving attempted to secure the services of a trained nurse. Two student nurses in training volunteered to care for the child.

"One of the nurses took the patient until midnight when the other relieved her. The child had great difficulty in breathing, and an awning was constructed over its bed, within which was placed a lighted alcoholic inhalator, containing eucalyptus oil, the purpose of which was to diffuse a vapor which would relieve the respiration. About 3:30 A. M. the nurse then in charge left the room where the baby was lying for a few minutes. When she returned she found the bedclothes on fire. She lifted the child from the bed; the fire was extinguished and a doctor was immediately summoned, who administered first aid.

There is an irreconcilable conflict in the testimony as to the extent and nature of the burns the child received. Doctors and nurses who saw the baby after the fire testified that the burns were, for the most part, slight, first degree burns, limited to the face, one knee, and the arms. The parents of the child and the undertaker who prepared the body for burial testified that the burns were very deep, extending over more than one-third of the body. The child died some 16 hours after the fire. Whether or not her death was due to the effect of the burns, or to bronchial pneumonia induced by influenza, is one of the issues of the case.

(1) It is first contended by the appellant that the act of the nurse in caring for the child on the night of the fire was purely voluntary and an act of mercy, outside of her regular duties and did not come within the scope of her employment by the defendant, and was something which the hospital in no way could have required her to do, and from which it in no way profited. On this ground it disclaims any responsibility in the premises. We think, however, that there was no mere unwarranted assumption by the nurse of a duty not assigned to her, but that she was directly engaged within the scope of her employment in caring for the patient and ward of appellant, and with the authorization on the part of the appellant as to amount to an assignment. Consequently, appellant is liable for all actual damages resulting from the nurse's negligence.—*Langgay v. La Société Française de Bienfaisance Mutuelle, 198 P. 1011.*

THE question of the liability of a hospital and of its insurer for the negligence of its servants has been passed upon by the Supreme Court of Nebraska, June 23, 1921. It was there held that where a child born in a hospital is returned thereto three months later to receive nourishment from its mother, who had previously returned for treatment of ailments attending childbirth, the child, while in the exclusive care of the hospital is a "patient," and not a mere licensee, the arrangement being that compensation for the treatment of the mother includes compensation for the care of the child.

In a hospital with a department equipped for obstetrics, the bathing of a child born therein, if it thereby suffers bodily injury through the negligence or the mistake of a hospital nurse while it is exclusively in the care of the hospital, may be "hospital treatment" within the meaning of those words used in a policy of liability insurance.

A nurse makes a "mistake" within the meaning of a liability policy insuring a hospital against liability "in consequence of any malpractice, error or mistake," when she allows the hand of a helpless child to come in contact with a hot appliance.

Judge Rose delivered the opinion of the court:

This is an action on two insurance policies, each for $5,000, to recover the amount alleged to be due from the insurers for a loss reduced to a judgment for $5,000 which Mary Jane Hannah, an infant, recovered against the Ford Hospital Company, the insured, in a former action for personal injuries. (One of policies was issued by the Fidelity and Casualty Company and the other by the Maryland Casualty Company. Both are defendants, and insured is plaintiff herein. Each insurer, refering to its own policy, pleaded among other defenses, that liabiltiy for the negligence resulting in the personal injuries to the child was not covered by its insurance, and that it was not bound by the judgment for damages.) After the evidence had been adduced in this action on the liability of the insurance policies, each party requested a directed verdict in its favor. As a result the trial court exercised the jury and entered judgment in favor of the Ford Hospital Company against the Fidelity and Casualty Company for the face of its policy, or $5,000, for interest amounting to $120.83, and for an attorney's fee of $400. The action was dismissed as to the Maryland Casualty Company. The Fidelity and Casualty Company has appealed.—*Ford Hospital v. Fidelity and Casualty Co. of New York, 183 N. W. 656.*

WHERE the employees of a railway company formed a beneficial association, which built and equipped hospitals, the administration of which was in the hands of persons elected by the employees, a small percentage of each employee's salary being collected by the railway company and turned over to the Association, the association was not the railway company's agent in treating members, and the company was not liable for negligence in such treatment, although it contributed $50,000 a year toward the success of the hospitals, and its treasurer and comptroller of the association, and persons not members, injured on the road, were sometimes treated at the hospital at the company's expense.

A conductor for the Northern Pacific Railway Company brought action against the Railway Company to recover for personal injuries alleged to have been suffered by reason of an operation for appendicitis performed by the chief surgeon of the Tacoma Hospital of the Northern Pacific Beneficial Association. When he became sick, Carr went voluntarily to the Hospital of the Northern Pacific Beneficial Association. The result of the operation was unsatisfactory and he charged that the defendant who operated was negligent, and the attendants furnished by the defendant were negligent in not doing certain things they should have done—*Carr v. Northern Pacific Ry. Co., 273 Fed. 511 (U. S. Circuit Ct. of Appeals, May 21, 1921.*

THE Supreme Court of Connecticut has recently held that where the evidence showed that an employee fell from an open doorway protected only by a bar, when he went there to get fresh air, because the account of an operation given by the superintendent had made him feel faint, and that he fainted when he reached the door and fell out under the bar, the injury did not arise out of his employment, within the compensation act, although his employment permitted him to go to the door at that time, and though it would be inferred he went for some purpose connected with his employment, if the uncontested finding did not show the contrary *Reeves v. John A. Dady Corporation, 113 A. 162.*

THE Supreme Court of California, August 15, 1921, declared that the findings and conclusions of the Industrial Accident Commission on questions of fact are conclusive if supported by substantial evidence, and cannot be reviewed by the Supreme Court *in certiori*, under Workmen's Compensation, Insurance and Safety Act of 1917. Sec. 67 (a) (b) 67 (c).

A garage employee was operating a type which he was starting by [illegible] from his employer's gun. The bullet was intended for a stranger with whom the employer had a controversy over the negligence of gasoline, resulting in the shooting by the employer to defend his business. The Court held that the employee sustained an injury "arising out of and in the course of the employment."

within Workmen's Compensation, Insurance and Safety Act of 1917, Sec. 7 (a), in view of section 69 (a), though the accident was unusual and was not anticipated nor peculiar to the occupation. The case is unusual and constitutes an interesting decision.

Quoting from page 421, "The injury sustained by (the employee) was not due to skylarking or a frolic, but was received in the course of a series of incidents which had their initiation in a business transaction of his employer and while the latter was actively and justifiably engaged in defending his business. . . . When Barr (the employer) began shooting, he voluntarily exposed Shrout (the employee) as well as all other employees to the danger of being shot, and the fact that the injury which resulted was unintentional and purely accidental does not, in our opinion, prevent Shrout (the employee) from recovering."—*General Accident Fire and Life Assur. Corporation v. Industrial Accident Commission, 290 P. 419.*

The Management of Men

THE management of men with the more closely regimented systems of life is an increasingly important problem. The purpose of "Management of Men," by Edward L. Munson, is to develop the idea that management and morale is a science "whereby mental state and human behavior can be comprehensively and effectively controlled by the scientific application of the fundamental laws governing human nature itself." The problems and solutions offered in this book were worked out for the army. The principles, it is suggested, may be applied to industrial morale "and these should go far forward toward the solution of the disturbing economic, social and political problems springing from human relations in industry." The question as to what is a science and how far the solutions offered are acceptable will, for the present, be waived.

Morale is defined as "fitness of mind for the purpose in hand," "a sense of solidarity of strength and purpose, and ability to undergo in the accomplishment of a common cause," to continue after everything else is gone, the will to power, conquest or what not, misnamed a state of faith. The purpose of morale work is to make troops effective. It may be defined as positive or negative in character qualified as the case may be by self control, persistency, tenacity and initiative, or conversely by discouragment, dissatisfaction, and inefficiency. Patriotism and love of country are designated as the basis of military morale, capable of perversion for selfish ends, of course, but also pointing a way to higher things, freedom, democracy, and self-determination.

Morale work can, as everything else, be standardized. Methods and measures are susceptible to change but a minimum can be extended. Morale work endeavors to secure and furnish systematically information of the scientifically successful methods of handling men. In its application the individual or group must be studied to determine natural tendencies and habitual reactions, personal and human factors. Remedial action may be effective one time and fail another. Methods to arouse pride in service, to develop interest and enthusiasm are suggested; lectures, posters, slogans, parades, etc. Everything entering into the mind or environment of the soldier and his associates, civilian or military affects his morale, some tending to raise, some to lower it. Poor morale is said not to exist without a reason? Is the converse true? All morale work should be carefully planned, which is of course axiomatic and scarcely confined to any branch of knowledge.

General psychological principles, the basic instincts, fear, hunger, imitation, construction, etc., all have their place in the discussion. Psychological qualities, relations and methods, temperament its relation to sympathy, racial and individual traits, mood, character, habit, suggestion and prestige are all developed.

Officers and higher business officials may be said to be the controlling factors in the development and maintenance of military and industrial morale. The commanding officer, the morale officer, the chaplain, the company commander, and others all have very definite duties and obligations. No amount of technical training and knowledge will make an officer really efficient if he cannot preserve harmony and get the best out of his men. There are right ways and wrong ways of handling men. The army method is that of a command. The officer must be able to reach and inspire his men, while the giving of orders is an art in itself. The function of an officer does not cease with drill and the administration of his organization. He must develop and upbuild the character of his subordinates for here lies the efficiency of the group. The officer should be fair and willing to accept criticism and criticize himself.

Personality and leadership have occupied attention not only in the military but in civilian fields as well. The author here conceived leadership as the creative and directive force of morale. "The success of any army in peace or war, or the functioning of a great industrial establishment, depends very largely on the human leadership and ability of its superiors. The mere holding of a commission does not make an officer a leader. It assumes that he is a leader but it is further necessary for him to prove that he is one. The responsibility of leadership includes not only the officer but extends through him and beyond him to his men." Efficient leadership is based on a knowledge of human mind and morale factors. "To inspire faith is to give ability to accomplish."

It is impossible here to give the wealth of material which this keen observer of contemporary society has gathered together, prudential in fact, but nevertheless of great value in the absence of more exact psychological or philosophical data. The army affords really a most significant opportunity for the observation of society, a controlled society consisting mostly of young men but nevertheless with endless possibilities of experimentation.

The book here reviewed contains for example a chapter on "reward, punishment, and delinquency," giving some very illuminating data, more available perhaps than in ordinary life.

The chapter on industrial morale relates and is based upon the efforts to stimulate munitions work. The factors of industry, absenteeism, the importance of leadership, etc., are all discussed. It is pointed out that improved facilities for the hearing, investigating and remedying of complaints might decrease much of the labor turnover. "Encouragement succeeds where driving fails. Appreciation causes a sense of creative pride, which brings not only the hands but the personality to the work. What is needed is a spirit of service—not of servitude"—applicable it may be added to both sides, equally and at all times.

Henry Holt & Co., New York, 1921.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Ohio State University Student Health Service

Prevention of Disease and Health Preservation Are Keynote of Work

By H. SHINDLE WINGERT, M.D., Director Student Health Service, Ohio State University, Columbus, Ohio

OHIO State University, with an annual enrollment of over 8,000 students, is composed of twelve colleges, among them, the College of Medicine, the Homeopathic Medical College, the College of Pharmacy, and the College of Dentistry. It is centrally situated in Columbus, a city with a population of 237,000, containing sixteen hospitals, and an unusually large number of practicing physicians, surgeons and specialists. The university has, therefore, an advantageous position for cooperation in medical and surgical work for her students. The Students' Health Service has also so many sources of assistance available within the campus that our working policies have been formulated quite differently from most other Health Services in colleges.

The Students' Health Service occupies the entire first floor of the west end of Hayes Hall, which is located centrally on the main oval of principal buildings near the entrance to the campus and in close proximity to the Physical Education and Athletic Departments. The rooms are ample in space, lighting, and arrangement for service; an extra large waiting room, a capacious consultation room, and quiet operation and rest rooms. The equipment is first class in every particular. Our present Student Health Service Department is the outgrowth of the Medical Emergency Section which was organized in the Physical Education Department in 1908, and continued as sectional work until 1915 when it was established as a separate department.

In formulating our working policies, we tried to avoid anything that resembled State medicine, health insurance, or paternalism. We decided (1) to devote the major part of our time to the preservation of health and the *prevention of sickness;* (2) to endeavor at all times to foster and maintain the cooperation of the various colleges and departments in the University, and other agencies on and off the campus, which are operating for the health betterment of the university and community; (3) to recognize the rights of students to select their own physicians; (4) to make the individual student the center of intensive study, rather than the student body as a whole; and (5) to develop a type of service which would leave a lasting good impression upon the student, so that he might continue to apply the principles of "Health First" to his life in after-college years.

The time to teach health truths is during illness or epidemics. This is the psychology at the basis of the health education program of the Ohio State University Student Health Service. Healthy students show little interest in lectures on how to keep well, but when sickness overtakes them, then the information has direct personal bearing.

Making disease-prevention work personal at times of epidemics or individual illness has been found to be a most effective means of health education. The aim of the Student Health Department has been so to develop its service that the student will continue to apply the principles of "Health First" to his life even in after-college years.

In adopting these policies it was necessary to find the best methods of impressing the average college student that "health care" pays; that the early attention to trivial ailments often saves many valuable college hours. Though our lecture courses on personal hygiene help, one need not lecture long to young, healthy college students (and those who think they are well), on how to keep well, to find out how uninteresting it is to most of them. But when epidemics occur or sickness overtakes them, they are quite different persons. We long ago determined that to do the most effective work in disease-prevention, it must be personal, and at a time when the student is interested in his personal health and comfort. The methods we have been using in the past five years we believe have been very successful.

Medical advice and treatment are furnished free to students while they are on the campus during class-hours. In all cases of outside calls for medical attendance it is first ascertained if the patients have any choice of physicians. If not, the calls are referred to physicians in whom the Service has full confidence. We do not make calls or treat students outside of class hours. The department

Ohio State University campus, showing central part of Hayes Hall, the Student Health Service maintains its headquarters.

acts as a clearing house for sickness and accidents occuring on the campus. Students who are compelled to remain away from their university duties on account of sickness, report here before and after the attack when possible, and are provided with excuses for their absences. In this way we are able to keep in close touch with the general health of the University students.

Monthly Health Reports

From the opening of the University in the Fall, until early Spring, a constant health propaganda is conducted by monthly reports to the teaching force, through the University daily paper, and by distribution of our "Health Cards." The student is at all times impressed with the importance of prompt treatment of trivial ailments, both from the standpoint of the individual student, and from that of the student community.

The growing interest in this respect is shown in the following statistics: 1918-1919, office calls for *advice only*, 135 patients; 1919-1920, office calls for *advice only*, 259 patients; 1920-1921, office calls for *advice only*, 446 patients.

When the student appears in this department, he is required to fill in certain blanks. He is then ushered into the treating-room, his case diagnosed and treated. He is then given personal advice concerning *care of himself during his present sickness*, and presented with our Health Cards, showing *how to prevent a recurrence of the same*. When the case is serious enough to require the student to remain in his room, he is assisted in every possible way to secure the proper medical attention or hospital care. In this way we secure the student's lasting interest and cooperation.

Last year 3,595 different students made a total of 10,923 visits to this department. The prevailing diseases were coryza, nasopharyngitis, tracheitis, bronchitis, and disordered digestion. There was very little serious sickness; in fact, there has been a steady improvement in student health from year to year, with the exception of 1919, during the "flu" epidemic.

Through the hearty cooperation described below, we are able to conduct our work with a remarkably small staff,—one physician, a nurse, and a secretary. The largest number of patients treated in any one day, in October, was 104, the smallest number, 64, average number daily, 85.

Cooperation by Many Agencies

It may be hard to understand how this volume of work can be efficiently handled by such a small staff until one has become acquainted with our Health Card system, and the cooperation of other departments. This department is not attached to any college in the University but is under the direct supervision of the President. The annual expenses, which are extremely low, are paid by the Trustees out of the general funds of the University. Cooperation is secured through: (1) College of Medicine by daily clinics open to all students; Department of Public Health and Sanitation, regular credit courses in Personal Hygiene, Preventive Medicine, Social Service, and Public Health Nursing; (2) College of Homeopathic Medicine by daily clinics open to all students, with laboratory and x-ray assistance to this department at any time; hospital accommodations to students at low rate; (3) College of Pharmacy, which conducts a dispensary especially for the department, open daily during class hours; they fill all our prescriptions and furnish medical supplies at cost to students; (4) College of Dentistry by daily clinics open to all students, all kinds of work being done, for which a small fee is charged; (5) Department of Applied Optics by clinics open to students four afternoons a week; eyes examined and prescriptions given free; students applying for relief from eye trouble, caused by constitutional diseases, are frequently referred to this Department.

Further cooperation is secured through other departments, student organizations, and state and city health agencies. All men entering the University for the first time, and all women of the first and second years, are required to undergo a thorough physical examination by the Department of Physical Education. Records of these examinations are available to this department at any time by 'phone or letter at the shortest possible notice. This frequently

The waiting room where preliminary blanks are filled in.

helps us clear up a doubtful diagnosis and saves much valuable time. Accidents and acute illness occurring in this department are frequently referred to us for treatment. Its credit courses in Personal Hygiene are proving very helpful. All excuses for absence from military work caused by accident or acute illness are referred to the Student Health Service before the excuse is granted by the military authorities. Sickness and accidents occurring among students while on duty are referred here for advice and treatment.

Under the supervision of the Dean of Women, a periodical inspection of housing conditions for women is carried on. This includes cleanliness, heating, lighting, and ventilation of rooms, which is proving very helpful and is much appreciated by women. The Student Council has become deeply interested this year in our "Health First" movement, and has inaugurated a plan for the betterment of rooming and living conditions for our men students, which will surely bring good results. The University Y. M. C. A., through its health committee keeps in daily touch with this Department and visits students who are discouraged or too ill to attend classes and need help.

The State Department of Health Laboratories aid our work by promptly examining all specimens of sputum, smears, etc., and furnishes us with certain vaccines free for students. The City Board of Health also furnishes certain vaccines and investigates all suspicious cases of contagious diseases, and keeps us posted on the general health in the University district. City physicians, those especially in the University district, keep us posted concerning seriously ill students under their care. We also note that members of the teaching staff are sending more students to this department each month for early treatment of trivial ailments. This is very encouraging, and helps to prevent a great deal of sickness. Through the cooperation of these various agencies, a number of valuable relationships have been established which are proving helpful to all concerned.

If there can be any criticism made on our present-day methods of handling Health Service, in universities and colleges, it will be from the standpoint that we are devoting too much time and money in treating disease and not enough in *preventing* it. Most of us agree that at least 75 per cent of the sickness which occurs during college life is preventable, and we believe the time is rapidly approaching when "Health Care," instead of medical care, will occupy the major part of our efforts in our Health Service work.

Medical and Electrical Treatment Room

Consultation and treatment rooms.

Mortality Rates Show Slight Increase for 1920

A slight increase in the mortality rate for 1920 as compared with 1919 is noted in the Census Bureau mortality statistics report for 1920. The 1919 rate of 12.9 per 1,000 was the lowest on record since 1900, the 1920 rate being 13.1 per 1,000. Fears that the increase would continue during 1921 are allayed by statements indicating that for the first nine months of 1921 the recorded mortality was 18.1 per cent lower than in the corresponding period of 1920.

The death rate from pneumonia increased from 123.5 per 100,000 in 1919 to 137.2 in 1920; organic diseases of the heart from 131 to 141.9; cancer from 80.5 to 83. Measles, scarlet fever, whooping cough, automobile accidents and cerebral hemorrhages also showed increased rates. Tuberculosis shows a marked decrease from 125.6 per 100,000 in 1919 to 114.2 in 1920, also influenza from 98.8 to 71.

The almost steady decline in mortality rates is largely due to the lower rates from tuberculosis, typhoid fever, and other communicable diseases. Application of the known principles of disease prevention, advances in our knowledge of the cause and treatment of disease, and a consistent steady campaign of popular education in personal hygiene will bring the mortality rates nearer the irreducible minimum which is the ultimate objective of a preventive program.

Sanitation in Public Buildings as a Health Factor

Conditions in Schools, Hotels, Jails Have Direct Community Health Bearing

By MANTON M. CARRICK, M.D., State Health Officer, Dallas, Texas

THE public buildings of our communities are important factors in determining the physical and mental health of our people. A healthy people physically is a healthy people mentally and morally as well. The two go hand in hand, and a weakening of one means a weakening of the other. Sanitary surroundings largely determine the healthfulness of a locality. Just as ignorance, indifference, and carelessness are the chief causes of preventable sickness and death of the physical man, so are low ideals and surroundings the social bacteria that prey upon the mental associations.

The most valuable asset in the capital of any community is the health of its children, and as nearly all children between the ages of seven and fourteen years attend school, it devolves upon the community to see that their surroundings while in school are conducive to their well being, physically, mentally, and morally. It is the duty of every parent to know the school which his child attends, but how many of them have never seen even the inside of the building?

Sanitation in Schools

If children are in a crowded school building they are in an improperly ventilated one, and are not doing their best mentally. Every school room should be constructed so as to give each pupil at least four hundred cubic feet of air, and this air should be entirely renewed every half hour. In cold weather the air should be thoroughly heated and an adequate supply of fresh, warm air be constantly introduced into the room. It should be borne in mind that cold air is not necessarily fresh air.

Sunshine should be the architect's rule in constructing a school house. School rooms with the windows placed in the north wall are best, as they are more uniform, and the desks, which must be suited to the size of the child, should be arranged so that the light will come from the left side and the rear. Sunshine and adequate heating facilities will do much to eliminate the dampness, commonly found in many schools, which is so inimical to mental and physical health.

The toilet rooms of our school buildings present a problem that is crying aloud for solution. The closets should not be connected in any way with the school rooms. In schools where there are no sewers, the toilets should empty into specially constructed tanks to dispose of the sewage in a sanitary manner. The best urinal is of slate with the dry earth system of disposal. In cities where there are sewers, the closets should have automatic seats to secure prompt flushing. Every toilet room should be provided with a lavatory to preserve health and cleanliness, and floors, walls, and fixtures should be scrubbed daily with water containing a disinfectant solution.

Parents should inspect with particular care the water supply of the school. Pure water is essential to good health. Sanitary drinking fountains should be installed in all school grounds as the expense is small and the sanitary valuation is immeasurable. They should be located on the play grounds. Like every other part of the school, these grounds should be kept scrupulously clean. Nothing should be allowed to clutter up the place; refuse and garbage of all sorts should be deposited in covered receptacles which should be emptied and cleansed regularly.

Care of the child health of a community is truly casting bread upon waters—it returns as a thousandfold blessing in the shape of healthy citizens, intellectually alive and forceful. But a community may have ideal schools; the children may be models of hygienic attention; and the outside world will still shudder at mention of its name, all because of the hotels.

Sanitation in Hotels

A hotel may be the measure by which a whole town is judged. It is the home the town offers to the traveler within its gates. If it is dirty, unattractive, insanitary, it reflects upon the entire community. Public spirited men and women should realize this and should see that its hotel dishes are properly washed and wiped, and should make certain that what I sometimes have found—dishes washed and not wiped, dishes wiped and not washed, dishes neither washed nor wiped, but doing a second, even a third time service, is not the condition in hotel kitchens of their town.

Bed rooms also should be inspected. Cuspidors overflowing with week-old deposits of fruit peels, tobacco, paper, and other trash should be noted. Only too often are the mattress and blankets on the bed in a highly uninviting condition. Woodwork and floors should be disinfected often.

To insure fresh air, every room should be aired daily, and bedding in rooms should be aired frequently when these rooms are not in use. Transoms should be placed over every bed room door and the halls should be well lighted and aired. Sunshine is one of nature's greatest boons. "While there's life there's soap," and soap should not be spared in keeping the hotel shining with cleanliness. Not only should the floors be swept daily, but the walls should be gone over at least once a week with a cloth to remove the dust, for germs are not confined to the dust on the floors alone. In sweeping, a good sweeping compound is made by wetting a pailful of sawdust with water and adding one-half of a pint of kerosene and a teaspoonful of suphonapthol or a 4 per cent solution of formaldehyd. This prevents dust being stirred up and acts as a disinfectant also.

Hotel sanitation is a problem that the health authorities must handle, but the citizens of every city and state should agitate it until a reform in the manner of conducting these places is brought about. It affects the health, not only of the community in which the hotel is situated, but also the health of every community from which it draws its patronage. We must agitate a rigid enforcement of the laws of sanitation which are, after all, the laws of common sense and common cleanliness.

Sanitation in Hospitals

The hospitals, particularly the county hospitals, offer problems in municipal sanitation. The application of modern sanitary principles

and the installation of approved sanitary appliances, which are necessary even in the case of ordinary dwellings wherein only a few healthy persons are sheltered, become of paramount importance in the case of sick and helpless patients.

The two great general sanitary requirements for hospitals, whether large or small, are, first, plenty of light and fresh air, particularly for the wards, for the toilet rooms, the pantries, and the closets; second, absolute cleanliness inside as well as outside of the buildings. A perfect system of water supply, sewerage, plumbing, and ventilation will help considerably in securing both conditions.

Water supply and sewerage are closely allied. No hospital, having a general system of water supply, should be without a sewerage system, and on the other hand, every hospital provided with sewerage facilities requires an abundant water supply to secure the flushing out of the plumbing fixtures, waste-pipes, and sewers. An abundant supply of good and pure water is a prime necessity. More water is required for hospital buildings than for other institutions in order to secure the fastidious cleanliness characteristic of a good hospital. Not only must provision be made for the large volumes of water required for personal cleanliness, for bathing, scrubbing, use in the laundry and boiler-house, but a large surplus of water is required for fire protection purposes. To insure the purity of the water used in hospitals the following analyses should be made: Chemical analysis to determine vegetable and animal impurities; a biological analysis to determine the number of disease germs, if any, and the bacteria present; and a sanitary inspection of the source of supply and its surroundings.

In a well-managed hospital, then, the most thorough cleanliness and a pure condition of the air indoors are secured by a constant vigilance against all manner of dirt. Half the battle is won when the buildings have a good system of sewerage and plumbing. These will not only prevent a contamination of the atmosphere in the toilet rooms, lavatories and sick wards by emanations from the sewer pipes and plumbing fixtures, but they will also render it impossible for the soil upon which the building stands to become polluted and give off gases injurious to well people and fatal to sick ones. They will, finally, assist in the maintenance of absolute cleanliness of the walls and floors, of personal cleanliness, and purity of the water and food supply of the hospital.

Court houses are nearly always unsanitary. Tobacco quids and stains on the stairways and in the corridors seem to be inevitable. The courthouse is the center of much of the activity of the county and should be a clean place, its spotlessness indicative of the type of justice to be dealt with therein. But too many of our courthouses are foul with accumulated filth and bad odors and it is hard to believe that any judge or jury could render impartial verdicts in such surroundings.

Sunlight and soap are all most of these buildings need. A washing of dirty windows and stained walls, and a touching up of grimy furniture will transform the place from an obnoxious one to a pleasant habitation for the officials who occupy it. A judicial "jerking up" of the janitor would, no doubt, result in a lavish and much needed use of mop and broom.

Sanitation in Jails

From the courthouse is but a step to the jail, one of the greatest problems of our community life. Jails as breeding places of crime is no new thought, but jails in a considerable number of communities are a menace to the life and health of your family. Jails are sad places at best; that the inmates are there may not be our concern, but how they are cared for while there, is.

I have visited jails remarkable for their filthiness. Many of them are in perpetual gloom because of inadequate lighting facilities, and on the damp walls, vermin breed. Rat-infested and bat-plagued jails are commonplace, and rats and bats are two of the worst disease-carriers known! Because of faulty toilet accommodations, many jails possess an odor that sickens one upon entering. Few jails have screens, and the prisoners are at the mercy of flies and mosquitoes.

The remedies for the above named defects are obvious. Sunlight, fresh air, and proper sewerage must all be taken into consideration when building or renovating a jail. We must remember that a good percentage of the prisoners detained in jails are not condemned persons, but are persons awaiting trial. Under the constitution of the state and country, such persons are supposed to be innocent until convicted of guilt. Is it right, then, to endanger their health by confining them in a death-trap where they may contract a disease which they may afterwards spread over the community.

While on this subject, let me say that in many jails there is no segregation of the prisoners. Juvenile petty offenders are thrown in with the hardened criminals, and the suspected man is placed with the convicted felon. Again, too little attention is paid to the segregation of the sexes. Men and women should have separate cells, as should the boy who is in for stealing and the man who is held for murder.

I have touched but lightly upon these problems, but I hope I have, in a measure, brought their needs home. Civic pride is a great aid to the healthfulness of a community, and if public buildings are not sanitary, they can be neither healthful nor beautiful. Cooperation as citizens in a clean-up of such buildings in a community is all that is needed. Progressive citizens desirous of better things for their children and their city should not blind themselves and, like the ostrich, think themselves safe if their eyes are hidden.

Disabilities Among Industrial Workers

In a report by Dr. Eugene Lyman Fisk, medical director of the Life Extension Institute, based on the examination of 10,000 industrial workers who submitted to periodic physical examinations, he finds that more than half of the disabilities discovered are preventable. Ten per cent of those examined were found to have slight physical defects requiring observation or hygienic guidance; 41 per cent had moderate physical impairments; 35 per cent had moderate defects requiring medical supervision or treatment and 5 per cent had serious physical defects urgently demanding immediate attention.

That illness is the cause of fatigue and not the effect, is the judgment of Dr. Fisk, who asserts that the length of the working day is a minor factor in the causation of industrial fatigue. It is the physiological conditions affecting the workers that result in undue fatigue rather than the period of work. "It is quite conceivable that if workers in an eight-hour plant and the workers in a ten-hour plant should have their physical deficiencies corrected to a reasonable extent there would be no difference whatever in the efficiency or rate of productivity in the two plants."

Ohio Plan for Care of Crippled Children

By EDGAR F. ALLEN, President, National Society for Crippled Children, Elyria, Ohio

I HAVE been asked to give an outline of the work for crippled children as contemplated in what is known as the Ohio plan which is backed up by Ohio Rotarians.

First, the Ohio Society for Crippled Children is Rotary in the Tenth District in action. The management of the society is vested in a Board of Directors made up by the election or appointment of one person from each Rotary Club of the state. They, in turn, elect the Executive Committee and officers. To handle the entire state of Ohio, with an area of over forty thousand square miles, and a population of nearly 6,000,000, with 2,323 cities, towns and villages, in eighty-eight counties, in which there are altogether upwards of 12,000 crippled children, or about two to every thousand population, is the proposition for the Ohio Society for Crippled Children.

After a study of the work for many years, and the experience that we have gained through the caring for nearly one thousand children at the Gates Hospital for crippled children at Elyria, we have come to the conclusion that it is a district problem, and to handle effectively the work, and really reach the great army of crippled children scattered throughout the state in every village, town, and city, we must offer as many district centers with facilities for handling the crippled child as are possible. The Ohio plan reverses the old order of things in that we believe that the facilities must be brought, as near as possible, to the child, and not the child brought to the facilities. For this reason we have established in the state of Ohio nine different districts, which are as many as we can at the present time establish, and have in connection with these centers the proper facilities for the caring of the child.

Contrary to the Iowa and Indiana plans of establishing one central state hospital to care for crippled children, the children to be committed from all parts of the state to it, is the Ohio plan of utilizing facilities at hand and taking them to the child.

The present plan of nine districts in the state in which hospital care is available for the treatment of deformed and helpless children was adopted by Ohio when it was found that 90 per cent of the children treated by a centralized state hospital came from a distance of only forty miles.

We believe that there are two fundamental propositions which are the basis of our work. First, that the care of the child should be the duty of the state, and that through legislation, which has already been accomplished, we should throw upon the state its proper financial obligation in connection with the cure and care and education of the crippled child. The next fundamental proposition is to make available to private philanthropy through already established hospitals and their facilities the best medical, surgical and nursing care that they can give to the children who are taken in charge by the state.

The older idea of establishing one center in a state for the care of crippled children does not reach the problem, as from experience we find that 90 per cent of the children that have been cared for and treated in connection with one institution already established and in operation for the last seven years, and opened to all the state, come from within a distance of forty miles. We believe that if we can establish ten or twelve working centers with total hospital facilities of from five hundred to one thousand beds, scattered throughout the state, with the provisions of Senate Bill 174 being cared for and functioning, that in time the crippled child will automatically be taken care of, which care will be paid for by the state, and will be worked through facilities established, and in the hands of private associations, which will, we believe, do away with red tape that surrounds institutions managed by the state. This plan, fully functioning, will eventually solve the problem, we think.

There are two pieces of legislation which have been backed and made possible by the Ohio Society for Crippled Children that are models, as we see it, in regard to the education and the cure of the crippled child. One is Senate Bill 174, already referred to, and the other is House Bill No. 200, which makes it necessary for Boards of Education to establish schools for crippled children in centers where there are more than seven or eight children found not receiving education at the general schools, the state allowing $300 per year per child.

The next question to arise is how to make all these things possible, and that is where the Rotary Club comes in. It must see that in every county and city these different pieces of leg-

After an operation in the Gates hospital, Elyria, Robert was able to walk. From an economic burden he will become an asset to society.

This little girl threw away her crutches after an operation. Follow-up work will see that she has correct home treatment.

Children, unbelievably deformed, have been cured and their legs straightened and made strong by proper treatment which Ohio plans to extend to all its unfortunate children.

islation are made effective. It must be the policing agency throughout the state of Ohio, seeing that the work, even after legislation has been accomplished and facilities established, is properly done.

The next problem is the establishment of the centers and what constitutes a center. There are, as we see it, eight different points that should be complied with to make a center for the care of the crippled child. They are as follows:

(1) A Rotary Club with a vision of the work and a willingness to go through.

(2) Hospital facilities of twenty or more beds in a thoroughly organized hospital having a competent nursing force and proper equipment for all classes of work for crippled and deformed children.

(3) The establishment of a weekly clinic for new cases and also old cases where the patient can return to have casts, braces adjusted, x-rays, and examinations.

(4) An attending orthopedic surgeon with a consultant.

(5) A survey of the entire district as agreed upon and complete records made of all cases in the district.

(6) A system of follow-up work to be established in order that cases can have correct home treatment, and as far as humanly possible, children be made well.

(7) A school for the education of crippled children in the district and bedside teaching for children in hospitals.

(8) Classes for slightly deformed children, such as flat foot and curvature, where corrective treatment may be given.

All this work must be made to fit and coincide with what is being done by the state of Ohio and other agencies. For example, the public health nurse must play an important part, first, in finding and reporting crippled children; and second, by follow-up work for crippled children after the work at the hospital or convalescing home has been done. When a crippled child is found, the public health nurse should get all the history of the child and place it in the hands of the public health commissioner of the county or city, as the case may be. Also, she should report the case to the crippled children committee of the nearest Rotary Club. The findings of the nurse should then, by a public health commissioner, or by the Rotary Club, be given to the judge of the Juvenile Court. He, in turn, can commit the child to the care of the state through the State Department of Public Welfare. The state will then commit the child to such institution as is established for his care and treatment.

The second part that the public health nurse would be asked to do is in following up the child after it is discharged by the State Department of Public Welfare from such institution where it has been placed. This is very important and if carefully cared for can make the permanent cure of the child possible, whereas, in some cases if this follow-up work and care were not given, the child would not receive the full benefit of the work of the surgeon and the hospital, for in many cases a complete cure takes a very long time.

There must be a great deal of work given by the Rotary Club to the establishment of schools for crippled children. Referring to House Bill No. 200, we believe that schools will not be established in nearly as many communities as they should be, at least for a long while, unless Rotary Clubs in the different cities demand that this be done.

The Ohio Society for Crippled Children is a means to an end. It is the steering committee of the crippled children's work in Ohio. It is trying to make all these things, not only possible, but a reality. We have been very successful up to the present; we have brought to the attention of the people of Ohio this great need and its wonderful possibilities, and we are today working absolutely in harmony with the great departments

One of the 12,000 [illegible] to take [illegible] to Orton [illegible] facilitate treatment

of the state who have the carrying out of the provisions of many different pieces of legislation. We are also working in harmony with all agencies that have been and are being established for the benefit of the crippled child, keeping in mind always that the duty of Ohio is not to any particular section but to all Ohio and that the crippled child in one county should have as good a chance as the crippled child in some other county.

If the present plans do work out in a large way, then the 12,000 crippled children that we have today will be taken care of, and not only that, but the 12,000 that will exist ten years from today will also be taken care of. That is our purpose, and that is the plan. What does this mean? It is said that the value of a life is economically between six and seven thousand dollars. So that if we are able to make possible the cure of three-quarters of the children there are now, and three-quarters of the children there will be in the next ten years that are crippled and deformed, and have turned those lives of dependency to lives of self-support, we shall have economically accomplished a value of hundreds of millions of dollars. What is even greater than the economic value is the humanitarian value which is beyond the words of man to express.

To sum up this movement, we find that we have already laid a foundation and made a start in a work almost altogether neglected previous to our attempt, which [illegible] values into millions and makes happy [illegible]. If this plan is successful in Ohio, we [illegible] entire United States should not be worked out on the Ohio plan of taking facilities to the child and not the child to the facilities.

A Cardiac Convalescent Home

A CONVALESCENT home for cardiacs, admitting to its confines men, women, and children of many nationalities and religions is the Burke Foundation, White Plains, N. Y. Founded by John Masterson Burke of New York City, in memory of his mother, the institution since its opening in April, 1915, has treated 28,008 patients, three thousand of whom have been suffering from organic heart disease. Ten thousand patients, representing seventy-five nations, were treated in the years 1919-21.

On the theory that the patients' health is dependent in great degree on normal social life, men and women and children are admitted to the institution and successfully convalesced together. Of the three hundred beds, eighty are reserved for cardiacs in need of rest and training to enable them to rehabilitate their energies to their full or handicapped capacities. The typical successful stay is from five to eight weeks.

Recreations and occupations involving physical exercises are encouraged at the Foundation and have been found to have a most salutary effect mentally and socially, according to Dr. Frederic Brush, medical director. Skiing, coasting, hiking, golf, croquet, and baseball are sports in which the convalescents participate. Dancing, taboo to many of the patients before coming to the Foundation, is considered one of the best recreations from the standpoint of mental as well as physical therapy. Two or three dances are given every week by the patients and a dancing class for cardiacs under eighteen years is held under the watchfulness of doctors and nurses. Dancing has stimulated the psychoneurotic patients to a feeling of normality, of rising again out of prohibitions and above social invalidism. Contra and folk dancing are also practised.

Golf is the best adapted and most generally practised game at the Foundation. A short course laid close to the cottage steps is a popular feature. The slopes, varying from 2 per cent grade to steep bank of 20 per cent, induce much grade walking without the consciousness of a set task. Holes are from ten to fifty yards in length, and the stroke is but "short approaching." Weekly prize tournaments with mixed sex and age groupings help maintain interest. Tennis, which amounts only to mild practice is played considerably by girls and young women.

Experience has shown that brief exercise is beneficial to the cardiac convalescent but that the danger comes in long and sustained exertion. Only a modified form of baseball is played, a six inning game with short runs and easy hitting. Field day programs with vigorous brief events in which the patients compete for prizes form a helpful factor. Contests for men include a fifty to seventy-five yard dash, throwing baseball, ten pound shot-put, ten pound hammer throw, discus, potato race, with similar but easier contests for the women and boys and girls. The natural play of children,—romping, wrestling, and tree-climbing,—has proved to be most beneficial to the juvenile patients.

Occupational therapy is applied to 90 per cent of the patients. Outdoor work on the grounds, such as gardening and laying walks, is of high therapeutic value.

Occupational therapy is being applied to almost 90 per cent of the patients from one to two hours daily. Shops for cement, carpentry, general repairs, basketry, and art supply work for many, while other patients keep up the grounds and buildings. Long-stayers work sometimes three to six hours daily for a modest wage. Outdoor work has been found to be especially beneficial to the cardiac convalescent. Women and girls find haying not too strenuous, while gardening furnishes suitable exercise for men. Aside from giving employment and testing the physical strength of the patient, occupational therapy has proved most valuable as a test of the individual's attitude toward the reparative effort and his life ahead.

The Burke Foundation is a convalescent home rather than a hospital, and admittance is made only when the patient has a reasonable chance of recovery. Cases are referred by various hospitals, physicians, and social agencies to the City House in New York, which acts as a clearing house and selects those best suited to the methods of rehabilitation practiced at the Foundation. A thirty

"Short Golf" is a popular pastime with the cardiacs and is best adapted to their needs. Weekly tournaments with prizes keep up interest in the game.

Outdoor dancing, one of the most beneficial forms of therapy for heart patients practised at the Foundation.

passenger omnibus which makes the twenty-six mile trip in little over an hour carries the passengers with a minimum of exhaustion to the country institution.

Upon arrival at the Foundation, each patient is given a bared chest examination and graded as to the amount of exercise he may take. Marked cases of malnutrition are given extra milk and olive oil. A week later patients are examined medically and, as they show good progress, they are examined less frequently until the final conference for discharge.

Almost no drugs are used in the treatment of patients. Too much treatment and too many restrictions have made many of them border-psychopathic. The anti-drug régime helps to overcome their abnormal outlook. A low protein diet has been the rule and has proved satisfactory to the patients' condition of moderated physical activity and organic insufficiency.

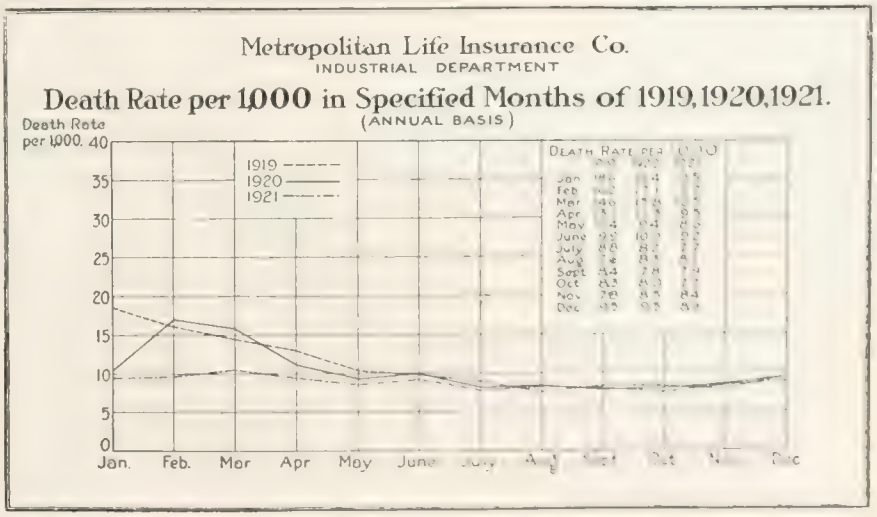
When the patient has graduated through the various stages of light occupational therapy and sports, from subnormal work and play to increased play and occupation, and at the end of six or eight weeks is in a strengthened condition and ambitious to go back to work, special agencies place him in more healthful working conditions. Follow-up care is afforded through heart clinics and service departments.

Records kept of patients who have left the institution testify to the efficacy of the exercise method of therapy. In fact, those making the most progress during treatment are those exercising most, "the triers," while the slow gains and partial failures occur in others who, through fear or obstinacy, maintain an attitude of physical inertia with its usual border-neurasthenia. Of sixty-nine leaving the Foundation during 1919-20 who registered with the Bureau for Employment of the Handicapped in New York City, sixty-four were newly and well placed, one was returned to his former job, another to his western home, one was too young to obtain working papers, while two were considered too ill for placement when they came to make application. At the end of the year fifty-nine held their positions, the majority being in improved health and contentment, ten had been back in hospitals with heart attacks for short periods, fourteen others had heart treatments as outpatients, and one elderly man had died suddenly while at clerical work. Fifty-five were still cooperative with their cardiac clinics. This group was below the average of discharged patients in physical and economic fitness, some of them not having previously worked for months or years.

While the work of heart convalescence has grown in the last six years from the almost negligible to the near ideal, the prevention of diseased heart strain lags. This prevention can be best accomplished only through country care which affords rest and diminishes stress. The open spaces and distances inducing walking, play, work, and mental exercise make the rural environment the most beneficial in the reconstructive convalescence of heart disease.

Mortality Rates Reduced

PERIODIC health examinations, wholly voluntary in nature, carried over a six-year period by the Metropolitan Life Insurance Company as an experiment in life extension, have recently been credited with a reduction in mortality among this group to 53 per cent of that expected. The result is striking and suggests its extension to limit the needless loss of life from certain definite diseases. Cancer, Bright's disease, cardiac conditions, and tuberculosis together reduce the span of life by about eight and one-half years for white people, all of them being more or less subject to control, especially in the younger age groups. The trend of public health is indicated by deaths from week to week and it is proposed to pool the data of the several insurance companies, tabulate them, and make reports in aggregate to such governmental agencies as need this information for use in fighting the battle for better national health.



That better health and improved life expectancy are not merely visionary is evidenced from the steadily increasing rise in rates above those expected [illegible] in the chart

The Play of a Nation

THE imperative need of play by both children and grown-ups in this modern civilized day and the recreational value of different sports and pastimes are set forth by Dr. G. T. W. Patrick in a recent issue of the *Scientific Monthly*.

Americans live tensely and under high pressure. In order to avoid mental and physical breakdown recreation must be truly so and not mere entertainment; it must relieve those brain centers which are overtaxed in our daily life of work and worry; it must be essentially different from our work; it must have the elements of rivalry, competition, and contest; it must provide for self expression; it must be preferably out of doors.

The popularity of football, baseball, and outdoor life is ascribed by Dr. Patrick to the fact that they exercise the older brain patterns and represent a reversion to natural outdoor life. "Applying our tests to these forms of play, it becomes clear at once that golf, tennis, baseball, football and basketball stand out preeminently as real recreative sports. From the psychologist's point of view, golf may be cited as the perfect ideal sport. It has all the needed recreational elements. It has a restorative power excelling all therapeutic arts. It represents a reversion to the natural outdoor life. We range over hills in the open, using the muscles of the legs, arms, and trunk. We carry a club and strike viciously at a ball. We search for the ball in the grass as our ancestors searched for their arrows. There is a goal and the spirit of rivalry and a chance for self-expression. The nerve currents course through ancient channels. We return to our work refreshed and rejuvenated. Golf, to be sure, requires fine adjustments of the eye and hand at the moment of striking but there is no continuous strain upon them and skill of this kind is a proper element in play. It is unfortunate that the opportunities for golf are now limited to the few. Nothing better could happen to our nation than a wide extension to our people of the opportunities to play golf.

"As regards tennis much the same may be said. Though lacking some of the distinctive psychological elements of perfect sport possessed by golf, it is still a very excellent and healthful form of recreation. Opportunities for it should be widely extended.

"Baseball and football have certain peculiar qualities which rank them as high or possibly even higher than golf. Being more strenuous, they are better suited to the young males, while golf and tennis may be played by all. We see at once that football meets all the conditions which we have outlined as marks of good sport. There is running, kicking, dodging, tackling, pursuit and capture. There are also the opposing groups, as in battle, and the rough rude shock of personal collision. All these ancient responses offer complete relaxation and release from the proper and pent up inhibitory life of our modern world. They arouse latent, deep-seated instincts and impulses, allow us to revel for an hour in these ancient memories and restore us to our work refreshed and purified. It is the grip upon us of that which is racially old which explains the immense throngs which gather at the football games. Seventy or even a hundred thousand spectators have been reported at some of the great games.

"The racial elements in baseball are not quite so old but are sufficient to permit the *catharsis* element in rare degree. Striking and throwing are dear to every boy, and these ancient responses, the ancestral conditions of race survival, are dominant in baseball, while the running and catching, and the opposition of the teams, and the reward of skill and of strength and quick decision add to the real recreational value of the game. The recent extension of non-professional baseball and football among school boys is a contribution to social welfare. Here again, however, the application of the statistical method awakens our concern. For if baseball is fitted to all young men from the ages of fourteen to thirty, actual regular participation in it will be found to be limited to relatively few. It should be extended to a larger number.

"But professional baseball as a national sport presents a different problem. Here the 'players' are not playing but working. The game is a profession, a strife for glory and for money. The recreational features are now transferred to the spectators. To what extent is baseball of recreational value to the fans? They usually ride out to the ball park in auto or street car, sit on the bleachers during the game and return as they go. Nevertheless the game has considerable recreational value for the spectator. The galling social checks and inhibitions of the daily grind are thrown off for a time. Free expression is given to one's feelings and enthusiasms. There is a mental participation in the game and no doubt usually a considerable degree of rest and relaxation is gained. But it does not permit of self-expression and is far from an ideal form of play and at the best the number enjoying it is relatively small. Basketball, though lacking in some of the distinctive recreational elements of baseball and football, is nevertheless of the greatest value as a sport and stands high in our list.

"Hunting and fishing, swimming and camping constitute a group of sports which rank high in the list of valuable recreations. They represent a return to primitive life and involve

Rivalry, competition, and contest, ancient forms of self-expression, are present in relay racing, thereby making it a truly recreational sport.

Basketball, especially when played out of doors, stands high on the list of healthful games.

only racially old and familiar brain patterns. They are out-of-door sports, using the fundamental muscles of the arms and legs and completely releasing the strain upon the eye and hand and nervous system. Hunting with the camera, recommended by humane societies, is well enough, but the camera is not a substitute for the gun in recreational value. When we consider the horrors of the late war and remember that if the nervous tension of a people gets too high it may overflow in an actual orgy of human bloodshed, the 'cruelty' of hunting and fishing seems less serious, especially if they act as a release of the nervous tension increased by our high pressure modern life."

But though the recreations mentioned in the foregoing paragraphs are truly recreations, they are available to comparatively few Americans, while the automobile, the dance, and the movies are accessible to millions of our population. With eight million automobiles in the United States carrying as passengers men, women, and children, motoring is a popular pastime. Judged by the criteria of good play, motoring takes man out of doors; it satisfies his roaming instinct and his desire for speed. For old men, for shut-in women, and for those who work on their feet, it furnishes rest, relaxation, and fresh air. But for the average man and woman and especially for the child, the automobile is disastrous. Modern life has made man a sitting, lounging, reading, studying, thinking being where heretofore for hundreds of thousands of years he lived on his feet and made his living by means of his legs. The extensive use of the automobile deprives many of the little walking they would otherwise do.

Though the movies with an attendance of twenty million men, women, and children every day is perhaps the most widespread amusement, judged from the standards of a real recreation, it ranks very low. The physical conditions in moving picture houses are of the worst. Children are confined to one seat, their attention is wrapt, and they remain in a rigid position for hours. The tax on the eyes, the most overworked sense organ in modern days, is also great in moving pictures. From an emotional viewpoint the motion pictures are harmful for they arouse a great flood of feeling which leads to no action. Their moral and social influence is often degrading.

Dancing, which ranks as one of the great amusements in America, is from a physiological point of view recreational. It is an instinctive form of enjoyment; it relieves completely the strain upon the eye and finger muscles, involving only the ear and the larger muscles of the trunk and legs; the rhythmical movements are ancient, easy, and natural. It follows the older brain patterns, thus resting the more highly specialized centers, and it gives an opportunity for self-expression. The sex factor, the fact that it is indoors, is largely a night pastime, and has associated

Older brain patterns are involved in running and jumping, thus giving the newer and more highly specialized centers a rest.

with it other unhealthful conditions, lessen the recreational value of dancing.

The solution of our social problems is largely a matter of healthful and harmonizing recreations, Dr. Patrick believes. These could be provided through the greater accessibility of outdoor sports and a revision of the school program in the direction of the English system in which sports and play are an integral part of the curriculum.

Race Stock and Vitality

An interesting analysis of changes in population composition is obtained in California during the period of 1910-1920. The population increase of 44.1 per cent for the intercensal period indicated a growth in all major race stocks except the Chinese which decreased 20.5 per cent. The white race showed an increase of 44.4 per cent, the negro 79.1 per cent, and Japanese 74.0 per cent. Further analysis reveals the fact that 65 per cent of the population increase among the Japanese is due to excess of births over deaths—a proportion much larger than that found in any other race.

The Monthly Bulletin of the California State Board of Health states that, whereas, the Japanese composed only 2.1 per cent of the total population, they were credited with 7.4 per cent of all births and only 2.1 per cent of all the deaths. Comparison of the infant deaths and stillbirths indicate low rates among Chinese and Japanese; the whites, negroes and Indians appearing unfavorably. The Chinese death rate exceeds its birth rate as the population is older and in time the operation of the exclusion law will result in higher death rate.

No race in the state compares with the Japanese in rate of reproduction and vitality. The 1920 birth rate was 67.6 per 1,000, a record without parallel in modern vital statistics. Coupled with this is an infant mortality rate of 68 per 1,000, 7 points lower than the white rate, and a stillbirth rate of 20.9, almost 12 points lower than the whites. In 1920 alone the Japanese increased their population 5.4 per cent by reproduction while the whites increased only one-tenth as fast. Negroes and Indians have unfavorable characteristics in their vital statistics with low birth rates, high rates for deaths, stillbirths and infant mortality.

Begin Right—Live Out of Doors

MUCH is written about the tragedies of the grown-ups of one-track minds who did not have the proper warning and the proper training in youth to develop a few parallel tracks. The importance of starting young, and of training the individual to give intelligent direction to his recreational activities, as well as his more serious tasks, is constantly stressed. One writer said, recently: "When young folks are taught the worth and ways of recreation, they are taking out an insurance policy against nervous disorders; and in middle age, when they come to collect, they will find themselves reimbursed a hundred-fold."

Not along physical lines alone, but mental—even moral arbiters are unanimous in pleading for early training in order to reap the full benefits of the opportunities which come to those who are properly trained, with the passing of years.

Why not, then, begin aright? Why bemoan and regret the lost advantages of youth, while refusing to open the eyes and minds of the somnambulant youth of today? In a few short years these children will stand in your places, and if you have done nothing to train them properly, they will be just where you are, lamenting their lost opportunities, and, as like as not, doing nothing to advance the progress of their offspring, in turn, along these latter-day concepts of right living and thinking.

Why is it that hundreds of parents read editorials, attend lectures, hear on all sides of the value of proper instruction for their children, who fully agree with all they hear or read, who think such projects are splendid, but who actually do not one thing to enforce such training upon their children? It is because they do not think, in a majority of cases. They imbibe such teachings in a detached way, never for an instant feeling that the message is meant directly for them. Let the school teacher, the next-door neighbor, let the other fellow assume the responsibility, but don't bother the average parent with the necessary study which such training entails.

And so the children lose much in life because they are untrained along recreational activities. They do acquire a general knowledge of athletics in their school curriculum, but the major portion of such training is, necessarily, confined to the indoors, and then, to short periods of time.

The proper kind of recreation is that spent in the out-of-doors, out in the fresh air, where clean, wholesome pursuits make for strong, vigorous bodies. Because school hours confine children to the schoolhouse ten months of the year, the only period in which training for correct recreational activities can be given unrestrainedly is the summer vacation period. Naturally, this must be done with organized groups of youngsters, to achieve results. Oftentimes, especially in the larger cities, campgrounds are not readily accessible, and much of the beauty and joy of learning how to live in the open is missed.

The summer camp is the logical place for introducing the worth and ways of recreation. There are many such, worthy, reliable camps, the camp-fire camps for girls, the increasingly large numbers of boys' camps, so located as to be accessible from all parts of the country, and the scope of the instruction offers unlimited opportunities to all who partake of their programs.

Why do not parents of growing boys and girls of today study the summer camp ideas and ideals? Why don't they investigate and find out for themselves what these camps will do for their children, in building better health, better morals, in teaching democracy and better citizenship? Why not take out insurance in favor of your child's future? Join hands with Science for the care of your child.

Los Angeles Outdoor Relief

THE Outdoor Relief Division of the Los Angeles County Charities has just issued a report on its activities at the close of a five year period during which time the many ramifications of relief and rehabilitation work have been brought together, fully coordinated and the work systematized so that now it operates, without overlapping in interest or effort, as a single unit.

The giving and withholding of relief intelligently is no mean achievement, and public aid without pauperization is the objective in really scientific reclamation work.

Organized charity encourages thrift and infuses new life into the discouraged. It compels a man to recognize that within himself, no matter how dormant it may lie, the spark of independence and self-respect still exists. It requires but the kindly word, the helping hand and simple faith in a fellow man to rejuvenate a broken life and bring it within the pale of recognized citizenship. The mere offering of food may appease hunger and satisfy this need for a time, but sympathetic service, given with this other essential, is often more helpful than the food itself.

A large majority of applicants are broken on the wheel of life either

People who are old, weakened by illness, or handicapped by some permanent disability find intelligent direction which enables them to take up new means of earning a necessary wage. There seem to be no age limits to acquiring new interests.

through sickness or infirmity, and were it not for these misfortunes, they would not become seekers of charity. Young mothers, with little broods clinging to their skirts, find it physically impossible to meet the demands made upon them now that the breadwinner has been taken by death, and they are forced, through stern necessity, to ask aid. Deserted mothers, too, come under this category and hundreds of babies, robbed of parental love and care by death, domestic differences and other causes, form another contingent that are entitled to preservation and protection from the vicious circle of destitution.

Cooperating Agencies

Splendid cooperations has been extended by the Jewish Aid Society, Bureau of Catholic Charities, City Nursing Division, various clinics of the City, County Public Welfare Commission, City Social Service, Children's Hospital, the Elks, particularly Glendale Lodge, the Masons and various other private organizations.

Occasional meetings with the various groups of social workers and philanthropic bodies, to whom we have at all times taken pains to explain the laws and principles under which the County Outdoor Relief is operated, and by making our method of operation clearly understood, we have removed many prejudices which existed heretofore.

The confidential exchange of the results of investigation has grown to be a very important factor. Social workers are turning more and more to this Exchange, as they realize that the best case work cannot be done without the aid of this branch of the department. Unless agencies pull together and work with one definite end in view, each counters the labors of the others. Team work has been found to be the keynote.

The handicapped men themselves become vitally interested in the work and find rejuvenation through creative effort.

The Confidential Exchange aids in many ways. It saves duplication of labor by giving to each agency the knowledge of the other. It aids in distinguishing the worthy from the unworthy and in giving relief wisely. It assures better diagnosis and treatment, promotes better understanding between agencies, and it systematizes the work by keeping an accurate record of all cases.

The Exchange consists of a card index of all cases known to the organization. Each card contains identifying information of the family or individual, such as names, ages occupations and addresses. There is also a street card index. These cards give the address and name of the family, and are filed alphabetically according to the name of the street. By means of this card index we can often locate a family when we fail to do so in the general index, due perhaps to difference in spelling. The Exchange also furnishes files in which the closed or "dead" cases are kept.

Social agencies either telephone or send in printed slips of inquiry concerning certain cases. The person in charge of the Exchange looks up the case and notifies the inquirer of other agencies in the city who are interested in that particular case. With this knowledge, the workers can get together and decide on some plan of follow-up work.

At the present time we have approximately 30,000 cards. The number has increased nearly 3,000 in the fiscal year 1919-20. Eighteen agencies in the city are making use of the Exchange, both in making inquiries and in reporting cases.

During the past fiscal year the County has handled 678 families, which represent 1819 children, who have been eligible for assistance from the State. For these families $186,517.36 has been expended. Of this amount approximately $151,439.68 will be refunded by the state. The balance, $35,077.68 represents the amount supplemented by the County to that allowed by the State.

Many children are receiving County Aid, who are not entitled to State Aid, for the reason that probably they have not been in the County long enough to be considered, time

New interests make new men of human derelicts

of required residence being two years prior to date of application. During the fiscal year the County has taken care of in this way 362 children, distributed in homes and institutions, some for various and legitimate reasons needing temporary care outside of their own homes.

The salvage department will soon occupy a remodeled building which will be devoted to reclaiming waste materials. At the present time there are in operation the following departments: Sewing Department; Shoe Department; Tailoring and Pressing Department; Paper Department; Millinery; Laundry and Ironing; Cabinet and Furniture Repairing; and Paint and Varnishing Department.

Each of the departments is to be operated as a training school, free of charge, where dependents may be taught a craft, and when sufficiently skilled will be given employment in proper factories, thereby becoming independent, thus renewing their faith in themselves, strengthening their character and removing them from County support. These training schools are, however, not confined to charity dependents. The general public is permitted to join in, and through their efforts the many articles of salvage are reclaimed and rebuilt, and when finished are distributed for charity, saving just so much to the taxpayers of Los Angeles County.

Industrial Extension Work

Most satisfactory results have been obtained in the division for the handicapped individuals, who have been brought to our attention. It is indeed very encouraging the way they have grasped and mastered various lines of work.

Through this agency ninety-nine persons have received instruction in seven different crafts, such as chair caning, weaving, jewelry making, the manufacture of reed furniture, etc. Eighty-two positions have been secured at salaries ranging from ten dollars a month to as high as one hundred dollars a week. Five hundred garments have been remodeled and patched, sweaters have been knitted and quilts made. Fourteen firms and six prominent individuals have cooperated in securing positions for clients. One blind man learned basketry sufficiently to go into business for himself, and is at the present time supplying the local trade. Another blind man has accepted a position in a reed furniture factory. One lady, who came to the Handicapped Bureau on crutches, feeling discouraged and practically down and out, was encouraged to do something for others as well as herself, and she has been engaged by one of the moving picture concerns in a part requiring crutches, at a salary of one hundred dollars a week.

Fifty or more books which have been given to the organization are passed out among the old people to read. Ten men have been trained for elevator operators and placed in positions. Fifty per cent of positions filled have been permanent. Twenty-one blind men have received instruction in various lines. Three deaf mutes are receiving training in handicraft.

The past year has been filled with problems, which have all been met through the resources and cooperation of the entire Outdoor Relief Division. In every way the work has been held up to the highest and best ideals, and an avenue opened up through which many prominent citizens without publicity to themselves have been able to assist in real constructive work for their less fortunate brothers and sisters. As proof that the handicapped people themselves are vitally interested in the work, they are waiting for the doors to open in the morning, and must be reminded several times later in the day that it is time for them to quit. Handicraft for the handicapped is solving the problem, proving that blindness is only a handicap.

Much is accomplished in reclamation work of any character, with the change in attitude which comes from hopefulness through self-help. When the means of rising above the handicapping condition are afforded, there is little trouble in evoking new energy and new capabilities. That the work is sound and the benefits permanent are fully exemplified in the cases reported.

Diphtheria Cost New York City $581,825

Dr. William H. Park, Director of Laboratories of the Department of Health, New York City, recently submitted a report which showed that the average cost of a case of diphtheria is from fifty dollars in a contagious disease hospital to more than one hundred dollars when the patient is cared for at home. The cost of the cheapest funeral Dr. Park set down as seventy-five dollars. During the first six months of 1921 there were 10,722 cases of diphtheria reported in New York City, and 611 died. According to the estimate, the 10,722 cases cost $536,000 and the cost of the 611 funerals was $45,826, making the total cost resulting from the disease during the six months $581,825.

"The remedy against all these losses," the report said, "is the giving of the Schick test to ascertain the susceptibility of an individual and the elimination of susceptibility by the protective treatment. The cost of protecting one child is twenty-five cents. The cost of protecting every one of the million school children would be $250,000. We were enabled to give the Schick test to more than one hundred thousand in 1921 and immunized forty-five thousand children."

Schools for Crippled Children

An act authorizing and empowering any school district in the State of Minnesota to provide for, establish, conduct and maintain schools for crippled children in such districts and appropriating money therefor was passed by the 1921 legislature. The teachers and nurses appointed to these schools are to be under the direction of the Commissioner of Education, and in addition to the usual qualifications, are to possess such special training as he may require. The sum of two hundred dollars for each child is to be paid out of the State school fund to the districts maintaining such schools.

Zinc Oxid Dermatosis

"Oxid-pox" due to the clogging of the sebaceous glands with zinc oxid and to infection has been found by J. A. Turner among workers in a zinc oxid manufacturing plant. The results of his investigation have been published in U. S. Public Health Reports, Vol. 36, No. 44, Page 2727. The zinc oxid body debris, and bacteria are forced into the sebaceous glands, distending them, aided by free perspiration and the rubbing together of two body surfaces. The dermatosis is characterized by a papular-pustular eruption in the pubic region, in the axilla, and on the inner surface of the arms.

The disease occurs most frequently during the summer months and its occurrence depends largely on the personal cleanliness of the worker, as no trouble is experienced if daily baths are taken. Special clothes of close weave, fitting snugly at neckband, wristband and ankles are recommended as a means of preventing contact of the oxid with the skin.

A strain on the feet is a tax on the health!

PHYSICIANS know that a constant strain on the feet results in injury to the nervous system, pains in the back and limbs, and often in a noticeable decline in bodily vigor.

In fact, it is impossible to be normally healthy when the feet are not kept free of strain. Even a slight strain—a discomfort—if allowed to continue causes damage.

The cause of nearly all cases of strain on the feet is incorrect shoes. The foot is designed solely for the purpose of bearing the weight of the body—being, really a framework similar to an arch bridge—and like a mechanical structure, a bridge or a building, there is sure to be strain unless an adequate and proper foundation is provided for it to rest on.

Nature intended us to go barefooted. This gave support at three weight contact points on the bottom of the foot, the heel, the outer arch and the ball. When people went barefooted they never knew foot strain or discomfort, and under such natural living conditions their general health was usually good.

Civilization demanded heels, and shoes were developed with heels—but in attaching the heel and raising the [illegible] of the foot, the outer arch was left unsupported. In the ordinary shoe the outer arch—one of the three weight contact points created by Nature—is left to sag down; to cause a strain on the foot; to injure the bodily health.

And so today we find that practically 90% of all women are suffering from foot strain, and are affected seriously by this discomfort, simply because they insist on having their feet well groomed and do not know they can secure both style and comfort at the same time.

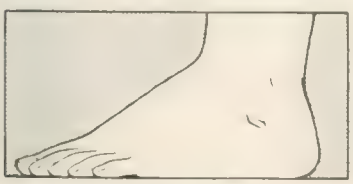
But the Arch Preserver Shoe, because of a concealed built-in arch bridge, improved lasts, and a correct system of fitting from heel to ball, a system originated by us and based on the measurements from which lasts are made, gives all of the advantages of going "barefooted"—and yet allows the wearing of fashionable heels.

The Arch Preserver Shoe satisfies both Nature and Fashion. It is in good style; it is sensible; it promotes general health; increases business efficiency. The trade mark below is on the sole and lining of every Genuine Arch Preserver Shoe. (There is a special model for nurses.)

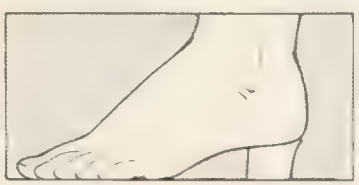
ARCH PRESERVER SHOE
REG. U. S. PAT. OFF.

[illegible]

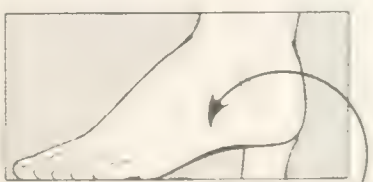
THE SELBY SHOE COMPANY **43 Gallia Street** **PORTSMOUTH, OHIO**



Nature plans that the foot rest on heel, ball and the outside arch.



Civilization demands that the heel and arch be raised.



The Arch Preserver Shoe and its [illegible] satisfy both Nature and Civilization.

THE ARCH PRESERVER SHOE

Influenza Commission Report

A "progress report" of the Influenza Commission of the Metropolitan Life Insurance Company organized in 1919 appears in the *Statistical Bulletin* for December. Some of the more significant findings follow:

(1) One attack of influenza does not confer permanent immunity and it is probable the immunity disappears within a year.

(2) The vaccines tried do not protect against influenza.

(3) The Pfeiffer bacillus is generally found in cases of influenza but is a secondary invader and not the true cause.

(4) There are many different strains of influenza bacilli which are harbored by many healthy carriers.

(5) The discovery of the identity of the microörganism causing influenza is one of the most pressing problems facing the Commission.

(6) Special studies are being conducted in Boston, New York and Baltimore of methods for the treatment and prevention of pneumonia, the most frequent cause of death in influenza cases.

Death Rates a Blot on Civilization

The following resolutions were adopted at the Tenth Annual Congress of the National Safety Council which was held at the Massachusetts State House in Boston recently.

Whereas the 80,000 accidental deaths and millions of injuries occurring each year on the streets, in our industries, in homes, and elsewhere more than twice the number of all American casualties in the great war are a blot on our civilization; and

Whereas, National experience has demonstrated that 75 per cent of industrial accidents are preventable; experimental campaigns in seven cities have resulted in the reduction of public accidents by 25 to 40 per cent and further efforts will undoubtedly result in even greater progress; and

Whereas, The direct economic cost of accidents in industry alone exceeds one billion dollars annually, and greater indirect losses are caused by the curtailment of production and lowering of morale. Therefore, be it resolved that the National Safety Council at its Tenth Annual Congress in Boston assemble advocates:

(1) The safeguarding of all dangerous machinery and places according to methods that have been found practical and effective.

(2) The re-designing and reconstruction of factory equipment when necessary and the improvement of dangerous processes for the purpose of removing the accident hazards, and at the same time increasing industrial efficiency and lowering cost:

(3) The education of all workmen and their supervisors in safe methods and habits of work:

(4) The safety education of all school children, as well as students of our colleges and universities, both for their own safety and to stimulate interest in the conservation of life and a better citizenry; and

(5) The mobilization of all community forces, including city and state at safety councils for intensive and permanent campaigns against accidents of all types.

Detroit's Experimental Nursery School

An experimental nursery school is soon to be established in Detroit, Michigan, by the Merrill Palmer School, in cooperation with the board of education. Girls selected from the public schools will be trained in the care of children of preschool age, taken from homes where there are no mothers to look after them.

A Job for Business Men

THE strain on the human mechanism has been so greatly increased by modern commercial and industrial conditions that the business world must insist upon the schools developing physically as well as mentally fit, the New York *Times* reports from William Mathew Lewis, Chief of the Education Service of the Civic Development Department of the Chamber of Commerce of the United States. Since efficiency is founded upon good health, he believes that the business men of the country in future will investigate for themselves conditions in schools where children may be subjected to overcrowding, poor lighting, ventilating and heating, and insist that proper accommodations be provided.

"The business world," says Mr. Lewis, "has much at stake in the matter of building in our schools citizenry which is physically fit. The times demand men and women who can stand the strain of the most trying commercial and industrial conditions the world has known. Health is the basis of efficiency. With specialized production and with the use of the telephone and other time-saving devices, physical exercise in connection with the day's work is greatly restricted, and as a result there is a constantly increasing number who break down in what should be the prime of their productive lives."

Proper medical inspection and physical training in our schools must be the answer to this condition. He who starts in the economic struggle without the proper physical equipment is limited in his choice of life work and in his ability to reach the top. Our future workers are not being given a fair start.

Out of 100,000 pupils in New York public schools alone who have to repeat their work yearly, 50,000 have defective eyesight. In a school in Detroit, Mich., 600 children were graded by mental tests. Of the 100 with the highest rating, 44 were without any physical defects. Of the 100 with the lowest rating, only 17 did not have such defects. In Omaha during the last school year 22,249 school children were examined. The total number of physical defects found was 18,882. Through the knowledge thus obtained, 46 per cent of those examined were relieved of the defects and started on the way to successful life. Statistics show that pupils with good teeth make better grades in school than those with poor teeth. Likewise they do better work when they get into business.

During 1917-18 the Health Department of the City of New York estimated that about 20 per cent of the children in the public schools were suffering from malnutrition. Of 59,000 children examined in Detroit recently, 19 per cent were ten pounds or more underweight and nearly 7 per cent were 15 per cent or more underweight. Will such conditions add to our future industrial and commercial efficiency? More than fifty years ago, Herbert Spencer pointed out the fact that healthy training was the first consideration in education. Centuries ago the Greek teachers stressed physical development and produced the highest type of civilization the world had known.

We have been slow to learn the lesson they taught. The time has come when the business men must find out by personal investigation whether the children of their communities are getting a decent start in life. They must see for themselves whether or not children are cooped up in buildings where wrong lighting ruins the eyes, wrong seating twists the backs and poor sanitation promotes disease. The facilities and leadership in the teaching of health and the development of strong bodies must likewise be investigated.

For a period of years over 50 per cent of the deaths among Michigan school teachers between the ages of twenty-five and thirty-four have been from tuberculosis.

Examine Your Patients' Feet for Structural Weaknesses

Weak or fallen arches or flatfoot are often the direct cause of many bodily complaints such as fatigue, nervousness, pain in legs, sciatica, painful heel, cramped toes and rheumatic symptoms. Mechanical treatment is indicated along with properly fitted shoes.

Dr Scholl's
Corrective Foot Appliances

are especially designed on anatomical and approved orthopedic principles to relieve the cause of the ligamentous strain and correct the abnormal posture. Worn inside the shoes, are comfortable to wear and easily adjustable to meet all conditions as presented to the physician.

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Better shoe stores in every locality carry the full line of Dr. Scholl's Corrective Foot Appliances and have also been instructed in how to properly fit them. Write us for the name and address of the dealer nearest you, Doctor, and let us tell you more about mechanical orthopedics of the foot, which subject is attracting so much attention from the medical profession at this time.

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New York Toronto London, Eng.

Relation of Lung Activity and Malnutrition

Dr. Royal S. Copeland, Health Commissioner of New York City, is reported as favoring measures to build up frail children through fresh air and proper breathing exercises. In many instances lack of lung capacity and lung activity rather than poverty, is ascribed by him as being responsible for the malnutrition of the 200,000 school children in New York City. In a letter to the superintendent of schools, Dr. Copeland asserts, "It is my opinion that every school child should have daily setting-up exercises, given with particular thought to chest and lung development. At regular times, morning and afternoon, deep breathing, together with simple but effective movements of the limbs and body, should be practiced by every pupil and teacher."

Health Service Prescribes for a Sick Stream

An intensive study of stream pollution with special regard to the establishment of a general plan by which any polluted stream in the United States might be purified at a minimum expense has recently been begun by the United States Public Health Service.

As is well known a polluted stream tends to purify itself, but its power in this direction depends on the amount and character of the original pollution, on volume and speed of the current, and on the extent to which new pollution is added along its course.

The Service has selected for study the Chicago Main Drainage Channel and the Illinois River, which empties into the Mississippi, chiefly because all the primary pollution of this stream originates in Chicago and is accurately ascertainable, both as to amount and character. Analyses taken along the course of the canal and river will determine the degree and nature of the changes that take place in it. Where new pollution is added, its amount and character must be ascertained; and its effect on the old pollution learned. This last is important, for it is quite possible that sundry industrial wastes might neutralize each other or might destroy certain types of organic pollution.

Similar work was done on the Ohio River from 1914 to 1917; and the present study is to check the results obtained there.

The final object is to establish fundamental quantitative relationships between bacteriological and chemical pollution of a stream on the one hand and basic principles, such as population, industrial wastes, stream flow, and prevailing temperature, on the other. These relationships, once established, will guide the sanitary engineers as "streamdoctors" in prescribing for a sick stream the sort of tonic required to restore it to health, and thereby make it available for human consumption or industrial purposes or both, as may be desired.

The work in Illinois is in immediate charge of J. K. Hoskins, Associate Sanitary Engineer of the U. S. Public Health Service, and is under the general supervision of Surgeon W. H. Frost.

Three Agencies Unite in a Five-Year Program

An interesting experiment about to be undertaken in the city of New York is outlined in a recent issue of *Better Times*. The Commonwealth Fund has undertaken to finance for a period of five years a broad and comprehensive experiment in methods of preventing delinquency. An appropriation of $165,950 has been made for the first year. The National Committee for Mental Hygiene, the Public Education Association, and the New York School for Social Work will each conduct correlated activities as a part of the program.

The National Committee for Mental Hygiene will, through its new division on the prevention of delinquency, maintain a psychiatric field service for juvenile courts in communities which wish to organize psychiatric clinics or to conduct experiments in the working of such clinics. Only communities employing visiting teachers may avail themselves of this service.

The Public Education Association will continue its special classes for abnormal children and will place visiting teachers in the schools of ten, and later twenty communities.

The New York School of Social Work will conduct a psychiatric clinic to be known as the Bureau of Children's Guidance, which will undertake the examination and treatment of children who present behavior problems. It will be located at 8 West Forty-eighth Street, and will be under the direction of Dr. Bernard Glueck. The staff will include an assistant psychiatrist, a psychologist, social workers and assistants. "The number of children handled by the Bureau," said Porter R. Lee, director of the School of Social Work, "will be limited to those who can be effectively treated with the facilities available. Throughout the work the importance of thorough treatment will be stressed. It is hoped that during the five-year period definite progress may be made towards a better understanding of the foundations of behavior and the possibilities of dealing with behavior difficulties before they become seriously crystallized."

Lakeman is New Secretary of N. Y. Health Board

Mr. Curtis E. Lakeman has been appointed Secretary of the New York State Department of Health to succeed Dr. John A. Smith, resigned. Mr. Lakeman was formerly Secretary of the New York State Water Supply Commission, and later served as Secretary to Dr. Ernst J. Lederle during the latter's second term as Commissioner of the New York City Department of Health. Since 1913 he has been connected with the American Society for the Control of Cancer, of which he was Executive Secretary until released for service with the American Red Cross during the war. He has recently returned from two years' work on the staff of the League of Red Cross Societies in Geneva, Switzerland, and as Assistant to the American Red Cross Commissioner to Europe in Paris. Mr. Lakeman is a graduate of Harvard University, class of 1904, and has been for several years a resident of Larchmont, Westchester County.

Children Interested in Principles of Nutrition

Under the direction of Prof. C. E. Turner of the Massachusetts Institute of Technology, school children of Malden, Mass., are learning of healthful foods by visual methods. Children become interested in the kind of food they eat when the food constituents are personified, says Dr. Turner. When eggs and milk are known as the twin fairies of "Growth Material" and "Repair Material," when energy-making cereals are visualized by the Brownie "Pep," when regulator foods such as vegetables and fruits are "Mr. Policeman" and mineral foods in carrots and apples as the "Iron Knight," the teaching as well as the application is simple. A full-time specially trained teacher has been appointed for the Malden schools this year and four hundred children from 9 to 14 years are being taught practical hygiene.

How the Right Shoes Increased Her Sales

A true story with a lesson for all men and women

"MISS GREEN, you and eight other girls sold of seven hundred pairs each more sales during the last three months. All the others show losses. Why have you been able to increase your sales?"

"Who are the eight girls?" asked the young woman.

The president of the store read the names. The girl seemed happy to answer.

"Shoes. Cantilever Shoes. I got them first. Later I took each of these girls, in turn, to the Cantilever Shop. In Cantilevers, you see, our minds are off our feet. The business gets all our attention. We don't feel cross, clumsy or tired. I suppose that's why our sales are good."

That afternoon the president of the big store walked into the Cantilever Shop and asked a salesman to explain the features of Cantilever Shoes.

The Cantilever salesman took a shoe and bent the sole at the shank, showing how the shoe [illegible] the human foot, even [illegible] a flexible arch like the foot. He said, "the arch of the foot should flex with every step, according to nature, yet ordinary shoes are made rigid by a concealed metal shank-piece that forbids free movement of the muscles. There is no rigid shank in Cantilevers. The 'waist' is designed to hug the instep, the shoe fits and supports the arch restfully. The flexibility allows the arch muscles free play and this, together with the natural lines of the shoe, permits perfect circulation.

"It is important to allow the foot muscles to exercise, to keep well and strong. The forepart of a Cantilever Shoe is shaped to look well, while allowing the toes to lie in their normal position. Cantilever heels are moderately high and [illegible] enough to be smart, without the [illegible] to the body out of balance as exaggerated heels [illegible] unnatural pressure and strain on the nerves and the internal organs. By wearing Cantilever Shoes a woman avoids [illegible] 'broken arches' [illegible] and nervousness. She is healthier and happier."

"The subject is of great importance to the business woman. Foot is physical to stand during the greater part of the working day. The kind feeling often complained about the end of the day's work may be attributed to ill-fitting shoes."
—Dr. Winnet Brown, head of the Department of Public Health of Philadelphia.

"Pain is a great foe to good looks. Comfort works just the other way. If you are comfortable, you are apt to be pleasant and pretty—for pettishness and pain go hand in hand. Eliminate as many of your worries as you conveniently can—among your tight shoes."
—Grace Margaret Gaud on "Good Looks" in Woman's Home Companion.

"Working women in the world of workers. It is the girls who are on their feet most who persist in wearing the tight or high-heeled shoes. Scientific women have learned that they can increase their efficiency and clear earn bigger salaries by wearing shoes built for solid comfort and health."
—Dr. Evangeline W. Young of Boston.

If no dealer listed at the right is near you, the Manufacturers, MORSE & BURT CO., No. 1 Carlton Avenue, Brooklyn, N. Y. will mail you the Cantilever Shoe Booklet and the address of a nearby dealer.

Cantilever Shoe

comfortable-goodlooking

Cantilever Stores

[illegible] 21 Orpheum Arcade
[illegible] Bon Ton, 112 Lex Ave
[illegible] Geo. Muse Clothing Co.
[illegible] Chas. H. Mayer
[illegible] 18 N. Charles St.
[illegible] Chas. Broadway Bazaar
[illegible] D. Barnard Co.
[illegible] 25 North Main St.
[illegible] Lasting Mode Co.
[illegible] 115 Edwin St.
[illegible] 636 Main St.
Butte—Hazel Shoe Co.
[illegible] J. J. Gardner & Sons
[illegible] 224 Postmark Bldg.
[illegible] E. Raymond St., Room 302
[illegible] The McAlpin Co.
Cleveland—Grauer Powers, 1274 Lorain Ave
Colorado Springs—M. E. Rice Shoe Co.
Columbia, S. C.—Watson Shoe Co.
[illegible] Miss Sallie Lewis
Dallas—Leon Rabb Shoe Co.
Davenport—R. M. Neustadt & Sons
[illegible] The Rike Kumler Co.
Denver—A. T. Lewis & Son
Des Moines—W. L. Wade Shoe Co.
Detroit—T. J. Jackson, 4 E. Adams Ave
[illegible] Geo. S. Lee, E. Jefferson Ave
El Paso—Popular Dry Goods Co.
Erie—Wessler Co., 940 State St.
Evanston—North Shore Bootery
Fargo—D. F. Sullivan.
Fitchburg—Wm. C. Goodwin.
Fort Dodge—Schill & Habenicht
Gloversville—Feldman's
Grand Rapids—Herpolsheimer Co.
Greenville, S. C.—Parker's
Harrisburg—Orner's 24 No. 3d St.
Hartford—86 Pratt St.
Houston—Clayton's, 503 Main St.
Huntington, W. Va.—McMahon-Diehl Co.
Indianapolis—L. S. Ayres & Co.
Jackson, Mich.—Palmer Co.
Jacksonville—Gilbert's Bootery
Jersey City—Bennett's 411 Central Ave
Johnstown, Pa.—Zarg's
Kansas City, Kan.—Nelson Shoe Co.
Kansas City, Mo.—700 Altman Bldg.
Knoxville—Spicer Shoe Co.
Lancaster—Frey's 24 King St.
Lansing—P. N. Arbaugh Co.
Laramie—Mayer Bros. Co.
Little Rock—Pfau Shoe Co., 302 Main St.
Los Angeles—305 New Pantages Bldg.
Louisville—Baster Shoe Co.
Lowell—The Bon Marche
Milwaukee—Wm. F. Sullivan
Milwaukee—Boston Store Co.
Minneapolis—21 Eighth St. South
Modesto—Leon Best Store
Montgomery—Capitol Shoe Co.
Montreal—67 W. Main St.
Muncie—Myers, 214 So. Walnut St.
Newark—836 Broad St. opp. City Hall
New Britain—Stein Bros.
New Haven—153 Court St. (2d floor)
New York—[illegible] West 34th St.
Norfolk—Ames & Rosenthal
Oklahoma City—[illegible] East 5th St.
Omaha—[illegible] Howard St.
Pasadena—Kinney's, 72 Lexington Ave.
Portland—Eccles & Young
Philadelphia—[illegible] Walnut St.
Pittsburgh—The Boston Store
Pittsfield—Levy's 224 North St.
Portland, Me.—Palmer Shoe Co.
Portland, Ore.—353 Alder St.
Providence—The Boston Store
Reading—S. S. Schoenberger
Richmond—Wm. Schwarzschild
Rochester—148 East Ave
Rockford—D. J. Stewart & Co.
Saginaw—Goodson Brader Co.
St. Louis—516 Arcade Bldg. opp. P.O.
Salt Lake City—Wright Bros. Co.
San Antonio—Guarantee Shoe Co.
San Diego—The Marston Co.
San Francisco—Phelan Bldg. (Arcade)
Santa Barbara—Sommers Bootery
Savannah—Geo. S. Shaw Co.
Schenectady—Patton & Hall
Seattle—Baker & Baker
Shreveport—Phelps Shoe Co.
Sioux City—The Boston Store
Sioux Falls—Cleveland Store
Spokane—[illegible] A. W. Kuhrt
Springfield—Mast, Foos & Wallace
Stamford—[illegible] & Son
Terre Haute—Levy's Palace (2d floor)
Toledo—[illegible] & Co.
Toronto—H. M. Yarwood & Bro.
Troy—W. H. Frear & Co.
Utica—Lewis Shoe Store
Vancouver—Hudson's Bay Co.
Waco—Davis-Smith Bootery
Walla Walla—Gardner & Co.
Washington—[illegible] F. Shoppe
Washington—Kann & Bergdorf Co.
Wausau—Geo. B. Taylor Co.
Wheeling—Rosenbaum's
Wichita—M. F. Murray
Wilkes-Barre—Clark Wear-Ever Co.
Winchester—J. C. Mapleson Co.
Yonkers—Kress Shoe Co.
York—The Bon Ton
Youngstown—B. M. Maris Co.

Progressive Health Program in Missouri

The six recommendations regarded as vital to the future of public health work in Missouri are based upon a series of partial and general surveys of the state and present all the advantages of right method in state health work. These recommendations include:

An amendment to the Public Health Act whereby counties of 25,000 population and over should employ an all-time health officer.

The passage of a law to prevent the marriage of mentally defective persons.

An Act to require the recording of all marriages in the Central Bureau of Vital Statistics to complete the valuable statistical information.

A new sanitary engineering act whereby the State Board of Health may be able to insure a safe quality of drinking water dispensed to the public, the proper disposal of sewage and the facilitating the abatement of insanitary conditions.

The Medical Practice Act should be amended to require an annual registration of all licentiates, making it possible to know at all times the location of a practicing physician and as a means of dispelling illegal and disreputable practitioners.

Adequate appropriations must be forthcoming for properly pursuing Public Health work, for the development of local health organizations and for the promotion of health education.

The biennial report just issued, covering 1919-1920 sets in array all the facts brought out in the intensive health study conducted in the state during that period.

Inefficiency of Efficiency Experts

Good health is generally recognized as an almost indispensable requirement of a proficient worker, says a recent editorial in the *Journal of the American Medical Association:*

The investigations that have been inaugurated in recent years by the comparatively new science of industrial hygiene have made it increasingly clearer that even slight indispositions, not to mention more pronounced lack of physical stamina, are often sufficient to lower the output or degrade the quality of the work of laborers in many fields of industrial activity. Hence the growing concern of those interested in productivity for the physical welfare and personal well being of the person who produces. In a recent address, Holmes of the University of Kentucky has struck a timely note, on the other hand, regarding the failure of many of our "giant efficiency experts" to apply their principles of efficiency to their own living. Now and then, when the public becomes acquainted with the unexpected breakdown of a great leader of men at an early age, one is impelled to ask whether he failed to apply to himself the same standards of concern for efficiency which he set before his employees.

In speaking of the occupational failures of the "experts," Holmes reminds us that their principles of efficiency are frequently not applied to their own living. Big business, he adds, cannot long be done efficiently on artificial stimulants and by flabby muscles and shortness of wind. In the struggle for business, only the strong survive. Today, when there is a great need of capable leaders, it is essential to preach the lesson that even the keenest intellect is not immune from the action of physiologic laws. Even the "experts" must sometimes be admonished to practice what they preach.

Junior Red Cross Establishes Hospital

A hospital and clinic for the care of school children with nose and throat infection has been established in Spokane, Washington, by the 16,000 school children who are members of the Junior Red Cross. The slackening of interest in Red Cross work following the war was met with the suggestion of this project, which fills a serious need. Money in the Junior Red Cross treasury provided full surgical equipment, paid the attending nurse, and now pays the surgeon and dentist originally supplied by the board of education. Furnishings such as towels, curtains, and bed linen have been made and renewed by members of the organization, and defective children in the schools have constructed furniture and rugs. Prior to May 27, 1921, four hundred and seventy operations had been performed in the hospital.

Indiana Dental Association Makes Survey

A survey throughout the state of Indiana was made during the month of November for the purpose of securing data regarding the number of children with defective teeth. The Dental Association has the support of the State Board of Health and the Department of Public Instruction, and the active cooperation of each public health nurse who is working in the schools.

The Commonwealth of Science

A recent statement of the purposes of the Rockefeller Foundation is a broad generalization of the objectives of scientific work.

"Science knows no national boundaries. It is a world product, a common fund of knowledge to which all nations contribute and upon which each may freely draw. To keep open the channels of communication by personal migration and by printed page, to encourage the training of specialists, to foster the growth of institutions, to stimulate research, to encourage the application of scientific knowledge to the needs of nations, communities, and individuals, are tasks upon the successful performance of which largely depends the progress of the world in economic efficiency, physical health, and international good-will. *It is the aim of the Rockefeller Foundation to have a part in this great movement by helping to increase the common store of knowledge about the cause of disease, and through demonstrations and the services of trained experts to diffuse this information as widely as possible among all peoples.* Thus does the Foundation seek to fulfill its chartered purpose 'to promote the well-being of mankind throughout the world.'"

The American School Hygiene Association Meeting

Great interest attaches to the activities of an association which primarily interests itself in school health work and calls to its standard such advocates of hygiene as the representative physicians, dentists, nurses, superintendents, directors, supervisors, teachers, physical instructors, architects, psychologists, social workers, and parents as make up the membership of the American School Hygiene Association.

The program offered at the Thirteenth Congress of this Association covered the whole range of related subjects, and the speakers included such authorities as Arnold Gesell, professor of Child Hygiene, Yale University; Miss Grace Abbott, Chief, Children's Bureau, United States Department of Labor; Drs. L. Pierce Clark, John Sundwall, T. A. Storey, R. H. Halsey, and Edwin S. Ingersoll. The child health demonstration, sponsored by the American Child Hygiene Association, was outlined by Dr. Walter H. Brown, director of the Demonstration.

Sherman's Polyvalent Vaccines

A more adequate and rapid immunity can be established with polyvalent vaccines than from an infection itself. SHERMAN'S POLYVALENT VACCINES rapidly stimulate the metabolism and defense of the body with a resultant prompt recovery in general acute infections.

Given early, bacterial vaccines almost invariably cut short the common pyogenic infections of the skin, mucosa joints and tissues;

Administered in advanced cases, they usually ameliorate or abbreviate the course of the disease;

Even when used as a last desperate expedient, they often reverse unfavorable prognosis.

The immunizing powers of stock vaccines are demonstrated by the prophylactic efficiency of typhoid vaccine. Bacterins made from selected, vigorous organisms are far higher immuno-producers than autovaccines prepared from feeble, degenerated organisms sometimes found in the patient's own specimens. Especially in acute cases, the PROMPT injection of a stock bacterin is decidedly preferable to the DELAYED injection of an autogenous one. The place for autovaccines is in chronic infections which fail to clear up under stock bacterins due to the probable presence of some unusual bacterium.

Advanced inflammatory processes due to only one class of bacteria are rare, mixed infections being the rule. Therefore, COMBINED VACCINES, containing all strains likely to be present, give the best assurances of success; an unneeded variety of the bacterin is harmless and in no way weakens therapeutic response.

Thus the favorite invaders of the nose and throat are the pneumococcus, the streptococcus, the staphylococcus and the micrococcus catarrhalis, calling for Sherman's No. 40, and in chronic cases—when there is a foul odor produced by the Friedlander bacillus — Sherman's No. 36. In visceral infections, due chiefly to the colon bacillus with the pus cocci, Sherman's No. 35 is appropriate. In Neisser infections, if these organisms are not already allied with the gonococcus, the imminence of their entrance is so great that the rational combination is Sherman's No. 49.

When, particularly in grave cases, valuable time may be lost in securing the variety of vaccine especially recommended, it is always advisable to use the vaccine at hand which contains the predominant organism of the disease to be combatted.

Sherman's 10 Mil Container

This package has many superior features which assure asepsis, prevent leakage and facilitate the removal of contents. It is constructed on the well known Sherman principle.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the asceptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

Twenty Preparations *Beyond the experimental stage*

BACTERIOLOGICAL LABORATORIES OF G. H. SHERMAN, M. D.

DETROIT, U. S. A.

"DAILY USERS OF VACCINES USE SHERMAN'S"

Limitations of Army Gas Masks

THAT the army gas mask, while capable of giving protection against the deadly gases met on the battle field, does not protect against all the gases or atmospheres encountered in mines, in industries and in fire-fighting is the warning given by the United States Bureau of Mines.

The need of a knowledge of such gases on the part of city firemen has been especially emphasized by overconfidence in the capacity of the army type of gas mask to protect the wearer against industrial gases, an assurance that has probably arisen because soldiers were taught that the United States Army gas mask would protect them against all the gases they might encounter. This statement, true for the battlefield but not true for all industrial gases, including products of combustion, has been brought back by soldiers and spread generally among workers.

Furthermore, city firemen and mine operators have been circularized with letters and advertisements of army gas masks offered for sale by certain persons who made unreserved statements, probably through ignorance, that the masks would protect wearers in mines and burning buildings. The falsity of these statements was evident to the Bureau of Mines, which took steps immediately to notify the public that army gas masks have serious limitations, especially when used in fire fighting or in any place where unusually heavy amounts of poisonous gas are present. This warning has been verified by the actual experiences of some city firemen who have tried army masks. On the other hand the excellent qualities of the masks have also been demonstrated at fires.

Whether or not firemen should adopt the army gas mask for general use has been much discussed. Theoretically it would seem that the half-hour oxygen-breathing apparatus, which keeps out all gases and supplies oxygen, would be much safer than the gas mask for fire-fighting. But practical experience shows that firemen, as a rule, do not favor oxygen-breathing apparatus. To them it seems cumbersome and uncertain in action. The combination of oxygen cylinder, breathing bag, regenerator canister, valve and pressure gauge appears too complicated for the rough and ready work of fire fighting. Although such apparatus has been on the market for a number of years, it is seldom put into practical use, even when on hand, at fires. Firemen prefer to take their chances unencumbered, or at most simply to tie a wet handkerchief or towel over the nose and mouth to keep out some of the smoke.

Therefore the utility of the gas mask must be considered from the practical point of view rather than the theoretical. A review of the many reports of tests in experimental fires by city fire departments shows: That firemen are favorably impressed with the simplicity of the gas mask and will wear it; that in the great majority of these tests it protected the eyes and throat from irritating smoke and was a great improvement on sponge respirators and wet cloths; that the mask did not encumber the wearer or retard his effectiveness in fire fighting; that no special training was required in learning how to use the mask; that in comparison with the oxygen-breathing apparatus very little attention is required to keep the gas masks in good condition.

These experiments by fire departments corroborate the experiments of the Chemical Warfare Service and of the Bureau of Mines in proving conclusively that the army gas mask, when fitted with a canister containing cotton filter pads, activated charcoal, and soda lime, effectively filters irritating smoke particles, and, in addition, protects against most chemical fumes in the concentrations likely to be met in fires.

However, in using the army mask the following serious limitations must be kept in mind: It furnishes no oxygen; hence it should not be worn into a place where a safety lamp or a fireman's oil-burning lantern will not burn; it should not be used where there is reason to suspect carbon monoxid, as in smoldering fires in basements and other confined, unventilated spaces, and especially in confined places where broken illuminating gas pipes add carbon monoxid to the air; it offers very poor protection against ammonia; finally, the army mask may break down in unusually high concentration of poisonous gases. It was originally designed for outdoor use, where the poisonous gases are considerably diluted with air. Caution must be used, therefore, in going into rooms where the concentration of the accumulated gas may be great enough to pass through the mask.

Perhaps the most serious limitation of the army mask for fire fighting is its inability to protect against ammonia and carbon monoxid. Although special ammonia canisters are now available commercially, and carbon monoxid canisters soon will be available, the fire fighter does not know in advance what gas or combination of gases he may find. Many buildings contain ammonia refrigerating plants, and all cities outside the natural gas belt are piped for artificial gas containing carbon monoxid. The fireman, therefore, must have, in a single mask, protection against all these gases. Enough progress has been made by chemists working under the direction of the Bureau of Mines and subsequently in the Chemical Warfare Service in the development of an absorbent for carbon monoxid to raise the hope that a combination canister for a fireman's mask, which will protect against smoke, ammonia, carbon monoxid, and practically all chemical fumes, will soon be commercially available. When this is accomplished, a fireman can be protected in any atmosphere where a safety lamp will burn.

Since the ordinary army gas mask can not protect the wearer from the poisonous gases in a burning mine, the Bureau of Mines recommends the use of self-contained oxygen-breathing apparatus by men doing rescue work in mines.

Detailed information regarding the utility of various types of gas masks and breathing apparatus in the presence of poisonous and asphyxiating gases encountered in fighting fires and in burning mines is given in Technical Paper 248, which may be obtained from the Director of the Bureau of Mines, Washington, D. C.

Organize New Health Bureau in New York City

Three Jewish health agencies have united in the support of a bureau to give to poor Jews free information and advice about physicians and hospitals. They are the Jewish Consumptives' Relief Society, represented by Dr. Ch. Spivak; the Joint Board of Sanitary Control, represented by Dr. J. M. Price; and the Social Service Department of the Free Synagogue, represented by Dr. Sidney Goldstein. This health bureau, which will be chiefly devoted to giving personal information, will also arrange lectures and publish hygienic literature in Yiddish.

When the plane of metabolism must first be raised

HUNDREDS of experiments in animal nutrition have proved the great value of yeast in the growth-producing dietary. One of the most striking descriptions of its importance is given by a man pre-eminent in the field of physiological chemistry:

"A scrawny, lethargic animal, rapidly dwindling in size, with unsleek coat and evident malnutrition, will completely change its appearance and responses in a few days at most on a diet unchanged except for a tiny bit of yeast."

It has been found that not only the brewers' yeast usually utilized in laboratory experiments, but also the ordinary baker's yeast has extremely important properties. One of the outstanding qualities of this yeast is that its unusually high vitamine content renders it especially valuable in dietetic troubles where the plane of metabolism must first be raised before the patient can safely ingest a larger quantity of food without suffering from overeating, and where it is unwise to stimulate the patient's metabolism by exercise.

"In such cases," says a leading physiological chemist, "yeast appears to offer the best means for furnishing a relatively large quantity of the water-soluble vitamine together with a comparatively small proportion of calories."

In the American Journal of Physiology for March, 1919, will be found a full account of the experiments made with Fleischmann's Yeast as a food for the growing organism. The experiments were carried on in the Laboratory of Physiological Chemistry at Jefferson Medical College, and they bear out the statement that yeast, by furnishing the water-soluble vitamine, raises the plane of metabolism rapidly

In administering Fleischmann's Yeast the usual dosage is one cake t.i.d., plain or dissolved in water, milk, fruit-juices or beef-tea. As whole milk is the most important source of the fat-soluble A vitamine a combination of yeast and milk offers a rich supply of both vitamines. If the patient is troubled with gas it is advisable to treat the yeast first with boiling water.

Physicians can secure fresh supplies of Fleischmann's Yeast from the local grocer, but if they prefer they may write direct to The Fleischmann Company in the nearest large city and a supply will be mailed on the days wanted.

THE FLEISCHMANN COMPANY, 701 Washington St., New York

Preventive Medicine and Hygiene

A new and revised edition of Rosenau's standard work on "Preventive Medicine and Hygiene," including chapters on sewage and garbage by Professor George C. Whipple of Harvard, vital statistics by John W. Trask, and mental hygiene by Thomas W. Salmon, has just been made available.

The work is so well known and widely used that it seems unnecessary to develop in detail its content and purpose. It was written to include the medical and related sciences which form the foundation of public health work. The book is divided into two parts, that which deals with the individual or person (hygiene), and that which deals with the environment (sanitation). A number of new subjects have been added,—oral, ocular, and personal hygiene, the vitamines,. rural sanitation, etc. Much of the book has been rewritten and extensive changes made.

D. Appleton and Company, New York, 1921.

Two New Insurance Manuals

The information of the general public with regard to the principles of insurance is notoriously uncertain. The average man, even the average business man, will usually be found not to realize the extensively broadened scope of insurance practice, or even able to analyze the particular form of protection for which he is paying. Two books recently published have great value as aids to the comprehension of the more important forms of insurance. The one, "Insurance Principles and Practice," by Robert Riegel and H. J. Loman,[1] both of the University of Pennsylvania, coordinates those features of insurance which are common to all its branches and analyzes personal insurance from the viewpoint of the buyer. Of particular interest to business men and to industrial physicians are the chapters on the newer developments of recent years in compensation insurance, the factors controlling rates and the methods of regulating reserves.

While "Medical Examination for Life Insurance," by Thomas L. Lister,[2] is designed to afford principles of the evaluation of lives which enable the practising physician to correlate the social and hereditary factors with his clinical experience, it is of interest to the general reader to learn the underlying principles governing the insurability of a life. It gives a rational perspective on temperament, habit, status, and tendency in the proposer for insurance and explains why the medical examination is only a part of the general assessment of life expectancy in a given case.

1. Prentice-Hall, Inc., New York, 1921.
2. Longmans, Green & Co., New York, 1921.

Tuberculosis in Industry

The January 1922 *Bulletin* of the National Tuberculosis Association is devoted to the consideration of the industrial tuberculosis problem and indicates the likelihood of a further reduction in the prevalence of tuberculosis in industry through its early discovery, adequate treatment, and effective follow-up care. An article by W. I. Hamilton, industrial research secretary, describing the studies in occupational tuberculosis, financed jointly by the Federal Board for Vocational Education and the National Tuberculosis Association offers promise of a solution to the question as to what industries or particular processes may be considered suitable or unsuitable for arrested cases of tuberculosis. The study will involve an investigation of the factors due to the personality of the worker, including his physical status, factors due to the condition of the work, to the materials and process, and to the working place.

Other articles deal with the industrial clinics of the New York City Department of Health, the garment factory conducted by the Committee for the Care of the Jewish Tuberculous employing arrested cases of tuberculosis exclusively, the activities of the Union Health Center under the Joint Board of Sanitary Control, and the industrial health educational program of the New York Tuberculosis Association.

The Teaching of Hygiene in the Grades

The book is an exposition of the history, literature, and methods of teaching hygiene to children. It includes chapters on: The fundamental importance of hygiene in the curriculum; the status of the teaching of hygiene; the goals of instruction; suggestion of method; important problems and their solution, and the teaching of hygiene in the rural school. The last chapter is by far the most important although all chapters are written quite well.

A complete bibliography and a selected list of reference books are added at the end of the book.

Houghton-Mifflin Company, New York, 1921.

Hookworm Control Experiments

A study of the factors influencing the life of the hookworm outside the human body was conducted during the summer of 1921 under the direction of an expedition sent to Trinidad, British West Indies, by the School of Hygiene and Public Health of the Johns Hopkins University, working in cooperation with the International Health Board. The work was carried out in an area where sugar-cane cultivation predominates and where 70 per cent of the people are infested with hookworm.

Full reports of the various investigations will appear in the *American Journal of Hygiene* but a summary of the significant findings is given in *Science* by Doctor W. W. Cort, director of the expedition. Epidemiologic studies of the factors involved in the spread of hookworm disease in two limited areas comprised one phase of the investigation, while laboratory studies were carried on dealing with the relation of the chicken and pig to the spread of the disease, the factors influencing the hatching of the eggs, the vertical and horizontal migrations of the infective hookworm larvae, and the length of life of the infective larvae.

The provision of an adequate number of latrines accompanied by an educational campaign resulted in considerable reduction in soil pollution in a short period. When chickens ingested human feces containing hookworm eggs only a very small proportion of such eggs produced infective larvae, a condition distinctly favorable to hookworm control. Eggs ingested by pigs, however, developed infective larvae just as readily as those passing through the human digestive tract. Hookworm eggs hatch in ashes as well as in soil, but where eggs are buried 4 or 5 inches in a clay loam soil, only a few larvae developed. Under certain conditions mature larvae can migrate to the surface from such a depth. Mature hookworm larvae do not migrate actively from their place of development, though they may be carried considerable distances by water and otherwise. The length of life of the larvae never exceeds six or seven weeks.

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Kotex cabinets are now being installed in women's rest-rooms everywhere — hotels, office buildings, restaurants, theatres and other places — from which may be obtained one Kotex with two safety pins, in plain wrapper, for 10 cents.

Inhalation of Injurious Dust

AN INVESTIGATION of the various types of respirators used by workers in numerous industries in preventing the inhalation of injurious dusts is to be undertaken at the Pittsburgh experiment station of the United States Bureau of Mines.

Stone dusts and metal dusts that are breathed by miners, stone cutters, and metal polishers have been the cause of much pulmonary diseases, incapacitating many workers and at times resulting in early deaths. While the best preventive is to eliminate formation of dust or to stop it at the source, nevertheless numerous situations exist where respirators are serviceable in preventing inhalation of injurious dusts suspended in the air. The respirators are mostly of the "pig snout" type that form a cap of metal, rubber or cloth over the mouth and nostrils so as to cause air filtration through a sponge, paper, fabric or metal gauze.

The finest particles of dust, of a size far too small to be seen by the unaided eye, are the ones that lodge in the lungs and do most damage. At present little is known of the merits of the different filters used for respirators, and workmen often prefer to protect themselves with a towel or handkerchief tied around the face. In the proposed tests by the Bureau of Mines fine particles such as compose tobacco smoke and fine mineral dusts suspended in air will be filtered with the different materials. The relative effectiveness of the filters will be noted as well as their resistance to passage of air and tendency to clog. It is proposed that the information obtained be used to design more effective dust respirators.

The tests will be conducted by S. H. Katz, assistant physical chemist, and L. J. Trostel, junior chemist, under the direction of A. C. Fieldner, supervising chemist.

Rural Schools Neglect Eyesight

EYE tests are efficiency tests. Bright children become dull because of defective eyesight and children remain handicapped and backward for lack of having their eyes tested and the proper corrective glasses applied, the New York *Times* quotes Dr. Thomas D. Wood, college physician of Teachers College, Columbia University, as saying in criticism of the laxity of visual standards in the state of New York.

More than 21 per cent of American rural school children have eye defects, according to Dr. Wood, who said that the health work in rural schools is just being developed, but that enough has already been done in a few states and in a few rural schools to demonstrate how important and how practical are these forms of health work.

Of 347 schools in town, of which eighty-nine may be considered rural schools, 66 per cent do not test eyesight. In 1,262 rural schools reporting from eighteen states, eyes are not tested in 76.7 per cent.

The eye as an optical instrument is almost never perfect mechanically. We find from examination of the eyes of school children that 25 to 40 per cent have defective vision which requires either correction by glasses or readjustment in class work. Most of these cases can be largely corrected by properly fitted glasses.

Educational experts in this country have come to an increased appreciation of the importance of the eye in school work, according to Dr. Wood. The United States Bureau of Education has just signified its approval of eyesight conservation work. Through Dr. John J. Tigert, Commissioner of Education, recently elected a member of the Board of Councillors of the Eyesight Conservation Council of America, with central headquarters in this city, the bureau will work with a group of leaders in eyesight conservation.

Some medical authorities have attributed epileptic and epileptiform seizures to abnormal eyes, said Dr. Wood. It is commonly conceded that defective eyes with imperfect vision cause headache through the forehead or the back of the head, or both, blurring of sight, though in farsightedness with eye strain vision may be exceptionally good, especially for distant objects; nausea and dizziness, sometimes disturbance of digestion, with resulting malnutrition; nervous exhaustion, nervous irritation and lack of nervous control, shown in muscular twitching of face, arms and legs, or in winking frequently and squeezing the eyelids shut; mental inability to grasp an idea presented through the eyes; retardation in school, and, in rare cases, convulsions.

The routine tests of vision and hearing can best be made by the teachers, said the doctor, as these tests involve to an unusual extent mental and educational, as well as health, factors and requires a knowledge of the pupil possessed by the teacher as well as simple methods of examination which all capable teachers can easily learn. The introduction of the eyes tests in rural schools, Dr. Wood said, would not necessitate a large outlay of money.

Is Tuberculosis Re-Infection Probable?

Our mode of attack on the tuberculosis problem has changed with the acquisition of new knowledge confirming or destroying commonly accepted theories of the day. To treat clinically active cases of tuberculosis was the principal measure in the early anti-tuberculosis program. Later emphasis was placed on measures for the prevention of infection, and when the ubiquity of tuberculosis infection was recognized, increasing individual bodily resistance was stressed to ward off the disease. Confident adherents of the theory that adult disease is due to the recrudescence of childhood infection have gone so far as to urge the impossibility of adult re-infection, which has of course had a profound effect on the measures designed to prevent infection. Despite the apparent plausibility of such a stand, data gathered by various investigations bring into question its truth and authenticity. An excellent example is the data gathered in the study of 229 widowed patients admitted to the Rhode Island State Sanatorium, of whom 93, or 40 per cent, lost their consorts by death from tuberculosis, a tuberculosis mortality over three times that of the married people of the community. The significance of this study is reported by H. L. Barnes in a recent issue of the *American Review of Tuberculosis.*

Veterans' Bureau Maintains Tuberculosis Clinic

A tuberculosis clinic for ex-service men was opened recently at the Veterans' Bureau, 23 West 43rd Street, New York City. The Clinic has been established at the suggestion of the New York Chapter Red Cross which has found many cases of men who developed the disease while in the service, but who are unwilling to go to a sanatorium for treatment.

The Veterans' Bureau has also recently established in New York a mental clinic where men who are not seriously enough affected to be sent to institutions can receive treatment. It is estimated that eighty per cent of the men coming to the Medical Social Service Department of the New York County Red Cross each year, about one thousand, are mentally unbalanced and in need of such treatment as the new clinic affords. The Red Cross is assisting this phase of the Veterans' Bureau work by looking up the family and social histories of all the men coming to the clinic.

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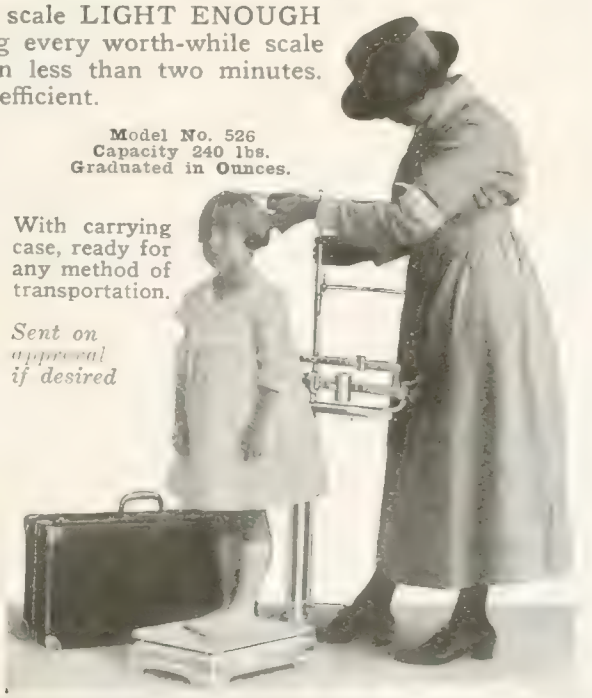

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What May Be Considered Adequate Color Vision

The need for adequate color tests to detect color blindness is treated by Captain E. J. Grow, Medical Corps, United States Navy, in a reprint from the United States Naval Medical Bulletin in *The Military Surgeon*. Contrary to popular opinion, color blindness is both acquired and congenital, states Captain Grow. It may be acquired, as in the case of the young naval officer who was temporarily color blinded by continued gazing at the reflection of the sun on a broad expanse of water.

Acquired color blindness is always met with in cases of optic atrophy. A loss of visual acuity is also experienced with the loss of color perception. Poisoning by chemicals or excessive use of alcohol or tobacco often produce color blindness. Color blindness from these latter causes may be cured if the case is properly treated.

As the degree of color blindness varies in persons, so acuity in color perception varies greatly in the normal individual. The person who cannot name the colors and has no occasion in his daily work to use them, but who recognizes the primary colors, represents the minimum. The other extreme of normal vision is represented by the person who can see violet as a distinct color in the spectrum. It is claimed that only one person in five thousand has sufficiently acute color perception to enable him to do this. Women in general average higher in color perception than men. Artists who have used colors for a considerable time become highly proficient and can see many tints that the untrained cannot see.

The Holmgren color test, involving the use of colored yarns has for a long time been the official test in the United States Navy. Although there are many valid objections to the Holmgren test and it is being rejected by many railroads, it has stood the test for forty years in the United States Navy, during which time no serious accident at sea could be attributed to defective color perception. The greatest defect of the test is that it does not detect those cases of color blindness resulting from a shortening of the red end of the spectrum. This is unfortunate for the double reason that this defect is common and that red is universally adopted as a danger signal.

The main objections to the Holmgren color test are that the color blind person can guess at the colors by the luminosity of the yarn, and that it is too elaborate to be carried out by a person with little color vision knowledge.

The Jennings test, consisting of various shades of green and red yarn in separate boxes, and the Edridge-Green lantern test are considered too complex and too liable to error for the purposes of the Navy. The Edridge-Green bead test is considered excellent by Captain Grow.

Revised Report on Children's Bureau

The National Health Council has issued a comprehensive report on the Children's Bureau of the United States Department of Labor. This report outlines the legal authority, history and development of the Bureau, its organization, current work, personnel, the Federal Child Labor Law, and the Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy. It was originally prepared on August 1, 1921, but with the passage of the so-called Sheppard-Towner Act, the scope and influence of the Children's Bureau has been so greatly increased and so much interest has been manifested in the Bureau, that the Council considered it worth while to revise the original report, many hundred copies of which had been distributed. The report on the Children's Bureau is one of five which have been prepared by the National Health Council concerning government bureaus dealing with public health. The others are about the Division of Vital Statistics of the United States Bureau of the Census, the Women's Bureau of the Department of Labor, the Division of School Hygiene of the Bureau of Education, and a general report covering the health activities of the government.

The Hygiene of Buildings

WE HAVE in the past been more or less concerned about the concentration and general direction of light, and have gone to some trouble to secure illumination that is soft, that seemed sufficient, and could be focused on the job. Nowadays, however, the lighting and heating of modern buildings, schools, and halls are measured with mathematical accuracy. It is not sufficient that the light on one's desk appears to be normal. So important a matter cannot be left to chance, states the New York *Times* in describing how the light falling on a desk, for instance, is measured by means of an ingenious device known as a photometer, which gives the precise candle power of the illumination, whether it be from the sun or an electric bulb.

The instrument consists of a telescopic device containing a small electric light, which is used as a unit of measure. It is equal to the light of a standard candle at a distance of one foot. A white disk is then laid on the desk and the barrel of the telescopic device slid back and forth until, as observed through the telescope, the light equals that of the standard of measure. The relation between the two lights is then recorded on a dial.

It is often found that the lighting on the desk in some obscure corner of an office or on a desk in a dark school room is only one candle, or that of a single candle held one foot away. Too much light is also bad for the eyes. The glare from a polished desk will also serve to exaggerate the light. As a matter of fact, the light on one's desk should be equal to that of nine foot candles, or the illumination of nine standard candles at a distance of one foot. In modern factories where correct lighting often affects the product, these tests are very important.

The degree of moisture in modern buildings is also the subject of painstaking study. Tests are made with a wet and dry thermometer. It has been found that in rooms which have been crowded with large audiences the air is often dryer than that of the desert. The range of these tests varies widely, some rooms having but 10 per cent of moisture and others 60 per cent. It is still fondly imagined by some that a pan of water placed on a stove or radiator will add sufficient water to the atmosphere of a room. An office building may require several barrels of moisture in its air every day.

The exact quantity of air entering a room or building is scientifically measured by a fan deliberately balanced, whose revolutions are indicated on a dial. The speed of the fan is read, and the amount of air calculated with reference to its speed is the size of the intake through which the air is admitted. Those working in rooms scientifically lighted and ventilated are found to work with much increased efficiency.

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FROM THE FIELD

The American Red Cross has discontinued the publication of all its national and local periodicals and is publishing in their place a weekly newspaper, *The Red Cross Courier.*

The Third American Congress of Infant Welfare will be held at Rio de Janeiro, August 27 to September 5, 1922, on the centennial of Brazilian independence.

The Journal of Orthopedic Surgery, Boston, Mass., will become a quarterly publication in January, under the name of *The Journal of Bone and Joint Surgery.*

The Attorney-General of Wisconsin has interpreted the state law to mean that all restaurant and hotel employees are under the jurisdiction of the State Industrial Commission.

A new cardiac clinic which will give Sunday as well as week-day service has been opened in the Cook County Hospital Dispensary, Chicago, with Miss Jean Wilson in charge.

Adolescent girls constitute the only group in which the tuberculosis death rate has not declined, according to statistics compiled by the Metropolitan Life Insurance Company for the ten year period 1911 to 1920.

Prof. Ernest Fuchs will deliver a series of twenty illustrated lectures in March at the College of Physicians, Philadelphia, on "Ocular Pathology."

Dr. T. C. Merrill, of New York, is joint author with H. Voille of a series of child health studies made while Assistant Medical Director of the American Red Cross in Europe. "Les grande formules modernes de la Nutrition, Leurs applications pratiques," one of the series, has been reprinted from *La Presse Medicale,* November 23, 1921.

Only 8.26 per cent of the rural population of the United States is provided with adequate health service, according to data obtained by the Rural Sanitation Office of the Public Health Service from the state departments of health.

E. Vernon Hill and John J. Aeberly, M.E., of the Chicago Department of Health, are authors of an article in the December *Heating and Ventilating Magazine* on "What About Ozone?"

Bailey B. Burritt, General Director, New York Association for Improving the Condition of the Poor, has an article on "The Place of the Nutrition Worker in the Health Program" in the December issue of the *Journal of Home Economics.*

The Fifth Annual Conference on Physical Education, under the general auspices of the Bureau of Education, will be held in Chicago at the time of the annual meeting of the Department of Superintendence of the National Education Association, February 24 to March 2. The progress of physical education organization is seen from the fact that six years ago only three states had any reference to it in their statutes while today 28 states have laws providing for some measure of physical education.

The Brazilian law regulating the importation, sale or furnishing of poisonous substances is to be enforced, as witness a recent decree of the President. According to this law, poisonous or narcotic substances, such as opium and its derivatives, cocaine, and similar drugs, may not be cleared through the customhouse, or be delivered when coming through the mails without a previous permit from the National Department of Public Health. The same law contains a provision for the establishment of sanitariums for toximaniacs, the treatment given to be both medical and correctional.

Fire hazards have increased in school buildings with the advent of the manual training and domestic science class, the motion picture machine, and the general use of schools as social centers, according to a writer in *The American City.* With 80 per cent of the school buildings in the United States fire traps and schoolhouse losses unusually heavy during the past year, the belief is increasing that insurance rates on school houses have not been advanced in keeping with the increased hazards.

A Federal Board of Hospitalization has been organized for the purpose of coordinating the separate hospital activities of the medical department of the Army, the bureau of medicine and surgery of the Navy, the Public Health Service, St. Elizabeth's Hospital, the National Home for Disabled Volunteer Soldiers, the Office of the Commissioner of Indian Affairs, and the United States Veterans' Bureau. Brig. Gen. Charles E. Sawyer, the President's private physician, has been appointed Chief Coordinator.

A bill introduced by Monsieur Destrée, Belgian minister of science and art, provides for compulsory physical education in all educational institutions under government supervision or subsidized by the state. Young men not attending any educational institution are required to register for physical training with certain authorized societies, and communes of more than 5,000 inhabitants are obliged to install and maintain a playground and gymnasium accessible to the children in the public schools and to members of the recognized societies.

The first day nursery in Ecuador was opened October 9, 1921, in Guayaquil in a reinforced concrete building erected through the generosity of the citizens and through the efforts of Dr. Juan Bautista Arzube Cordero and other members of the Puericulture Society.

With its October number, *The Hospital,* a leading English weekly paper, becomes a monthly journal with the title *Hospital and Health Review.* The change in title and form indicates a broadening of its field to include public health activities.

A bill for social insurance in France provides for the free choice of physician by the insured, necessity of contracts between the insurance companies and the local or national organizations of physicians, a control board of equal numbers of officials and physicians, and insurance for wage earners with incomes up to 10,000 francs. The employers retain 5 per cent of the annual wage to pay the dues. The bill, which forms a volume of 228 pages, has been distributed to the members of both houses. Cahen Salvador, a Conseiller d'Etat in the Labor Department, drew it. Boudin, in *Paris Medical,* analyzes the bill's provisions.

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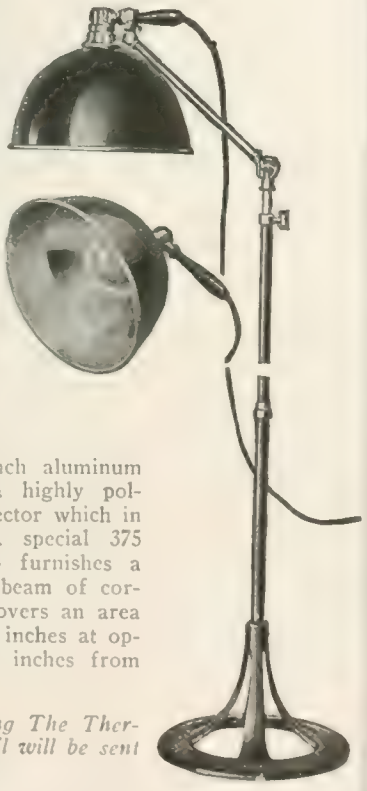

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A committee to make a survey of the existing methods of treating injured employees and to make recommendations to assure injured workmen adequate treatment, just compensation for physicians and surgeons, and the restoration of the patient to a condition of efficiency in the shortest possible time has been appointed by Henry D. Sayer, Industrial Commissioner of New York and head of the State Department of Labor. Members of the committee are Dr. James F. Rooney, Albany, president of the Medical Society of New York; Dr. Eden V. Delphey; Dr. F. D. Jennings; Dr. A. R. Tilton, Chief Medical Adviser, Travelers Insurance Company; Dr. R. Lewy, Chief Medical Examiner for the Department of Labor. Stanley L. Otis, Director of the Bureau of Workmen's Compensation, New York, is secretary of the committee.

A new publication, *The Weekly Better Times Bulletin*, made its appearance January 1 in New York City. This is issued supplementary to *Better Times*, a monthly devoted to the charitable activities of New York City. George J. Hecht is editor of the new bulletin and Mrs. Gertrude H. Springer is managing editor.

According to a recent decision by the Attorney-General of Ohio, osteopaths have the right to sign death certificates. The ruling holds that "if the osteopath meets the educational requirements of the statutes" and takes the same examination in diagnosis as is taken by physicians, under the law he should have the same legal rights as are granted to physicians.

The Associated Medical Clinic which has been operated by the Children's Bureau has been transferred to the Department for the Prevention of Disease in the Children's Hospital, Eighteenth and Fitzwater Streets, Philadelphia. Dr. J. Prentice Murphy is in charge of the department, which includes a health clinic, diphtheria clinic, pre-school nutrition class, dental clinic and mothers' conference classes.

The United States government has stationed two physicians at the University High School, Oakland, Cal., for the purpose of studying the effects of the students' physical condition on their scholarship, attendance and conduct. About 100 students are examined weekly.

A life insurance company with headquarters in Boston is aiding in the movement initiated by the American Society for the Control of Cancer to spread information regarding cancer by having its agents deliver to policy holders a pamphlet published by its medical department on "Vital Facts About Cancer." During the past five years this company has paid $4,379,778 for cancer claims.

Following several accidents to minors employed in hazardous occupations without labor permits, the Oregon State Industrial Accident Commission sent out letters to employers calling attention to the fact that the age limit under which a permit is required was raised by the 1919 legislature from 16 to 18 years. The maximum penalty for violation of the law by an employer is $500.

Maternity nursing by visiting public health nurses has reduced deaths of mothers 60 per cent, the number of stillbirths, 70 per cent, and the number of infants dying under one month of age, 50 per cent, according to Dr. Louis I. Dublin in the December *Public Health Nurse*.

Interesting data concerning child workers in New York state is contained in a recent issue of *The American Child*. During the year ending June 30, 1921, 19,542 employment certificates and 629 vacation permits were issued in New York state outside of New York City by the health officers upon whom this duty rested. Illegal employment certificates were issued to 389 children and illegal vacation permits to two. Of the total number for whom there was age data, 63 per cent were 15 years old, 36 per cent 14. Less than two-thirds had completed the eighth grade and many of these had attended a year or more of high school. Approximately 86 per cent presented birth records, passports, or baptismal certificates as proof of age. Thirty per cent of the children examined for certificates had one or more physical defects, subnormal vision and decayed teeth forming 75 per cent of them.

The unification of international standards of antitoxic sera is the aim of a study which the League of Nations Health Committee is making. The United States is represented by the United States Health Service at Washington and by Dr. Rupert Blue, Assistant Surgeon General, stationed at Paris, who will be present at the conference. German scientists, Japanese, and representatives of European medical services are participating in the work.

The committee purposes to standardize in the various countries the methods of measuring the strength of antitoxic sera, thus avoiding confusion now current in the measuring strength for sera for such diseases as dysentery, tetanus, diphtheria, syphilis, meningococcus and pneumococcus. Standardization will also be of benefit from the standpoint of international trade in sera.

At a conference held in London in December the study of standards for sera for the various diseases was allotted to the different laboratories. The State Serum Institute at Copenhagen will aid in coordinating the studies. Other bodies which will cooperate are the Medical Research Council of Great Britain, Pasteur Institute of France, State Institute of Italy, State Institute of Warsaw, Hygienic Institute of Basle, Pasteur Institute of Brussels, Kitasato Institute of Japan, as well as Austrian and German organizations.

The National Tuberculosis Association has issued a cumulative author and title index of its transactions from the year 1905 to 1920. Ella Hoffman Ward had charge of the compilation, which was published in New York by the Association.

A labor accident law which provides for half pay for temporary incapacity arising from accidents or diseases produced by the laborer's work and for two years' pay for total incapacity was signed by the President of Ecuador September 30, 1921.

The seventeenth annual meeting of the American Red Cross was held at National Headquarters, Washington, D. C., December 7. The following officers were re-elected: President, President Warren G. Harding; vice-presidents, Robert W. DeForest and William Howard Taft; counselor, James M. Beck; secretary, Mabel T. Boardman. Eliot Wadsworth was elected treasurer to succeed John Skelton Williams.

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Frank R. King, Plumbing and Domestic Sanitary Engineer of the Wisconsin State Board of Health, is the author of a series of articles on "Successful Sewage Disposal Systems for Farm and Rural Homes and Schools" which are appearing in *Domestic Engineering*.

"Helpful health hints" are being scattered over the continent by the *Wireless Telephone Health Bulletin Service* inaugurated at the beginning of the new year by the United States Public Health Service. These bulletins are sent out bi-weekly, Tuesday and Friday, at 9 p. m., from the Naval Radio Station at Anacostia, Va.

The Wichita, Kansas, police force is to be covered by group insurance, providing for $3,000 life insurance and $20 a week health and accident insurance for each member. A $5 a month increase for each officer, which was authorized in an ordinance recently enacted, provides the premium fund.

During the past year the United States Public Health Service has opened seventeen hospitals. It is also preparing nine other hospitals, four of which will be opened about May 1. Hospitals established recently include the former Navy Hospital at Gulfport, Miss.; Jackson Park, Chicago; Colfax, Iowa; Portland, Ore.; and the Edward Hines Junior hospital at Maywood, near Chicago; Fort McKenzie hospital at Sheridan, Wyo.; and the one at Fort Logan, Little Rock, Ark. The Navy hospital at Las Animas, Col., will be taken over soon. These hospitals increase the capacity of all service hospitals to 22,600.

The National Health Exposition was held in Louisville, Kentucky, February 1-9, under the auspices of the United States Public Health Service, the State Board of Health of Kentucky, the Jefferson County Board of Health, and the Health Department of the City of Louisville. Exhibits on hospitalization, nursing, dentistry, medicine and pharmacy were on display.

At an institute conducted by the U. S. Public Health Service, in connection with the Exposition, speakers included Dr. Milton J. Rosenau, Dean of the Harvard School of Public Health; Dr. Josephine Baker, Director of the Department of Child Hygiene, New York City Board of Health; Dr. Wm. A. Evans, former Health Officer of Chicago and public health editor; George T. Palmer, President of the Illinois Tuberculosis Association; Dr. Frederick E. Greene, Secretary of the Council on Health and Public Instruction, American Medical Association; Dr. Valeria H. Parker, Director of the Inter-departmental Board of Social Hygiene; Dr. John H. Stokes, syphilographer of the Mayo Clinic; Dr. Frankwood Williams, Director of the National Association of Mental Hygiene; Dr. W. S. Rankin, State Health Officer of North Carolina, and formerly President of the American Public Health Association; Dr. John Dill Robertson, former Health Officer of Chicago; Dr. John R. McDowell, Director of Health for the Lake Division, American Red Cross; Dr. John R. McMullen, U. S. Public Health Service; and Miss Frances Brink, Director of the National Organization for Public Health Nursing.

There are one million drug addicts in the United States according to estimates prepared by a committee appointed by the Secretary of the Treasury to investigate the use of drugs in the country. The report further states that only from 10 to 25 per cent of the quantity of drugs imported is actually needed to supply the demands of legitimate medical purposes. Much of the distribution of the drugs is through "underground" channels.

Public drinking fountains of the "bubble" variety in which the spurt of water is less than two inches have been banned in Cleveland by Health Commissioner H. C. Rockwood. Fountains with insufficient pressure to force the water two inches or more are a serious health menace and assist in spreading communicable disease, declares the commissioner.

Almost twice as many men as women die from tuberculosis in New York City, according to statistics set forth by Godias J. Drolet in *The Journal of Industrial Hygiene* compiled from the *Bulletin* of the New York Tuberculosis Association. From 63.1 per cent the male death rate per 100,000 from this disease has decreased to 59 per cent in 1920. The greater prevalence of the disease among men is ascribed to overwork and unhygienic workshops. Since 1917 when women entered industry in great numbers there has been a noticeable increase in the female death rate.

Announcement is contained in *Paris Médical* of an International Congress for the Protection of Infancy and Maternity called by the French League against Infant Mortality to be held in Paris, July 6-8, 1922.

Maryland now has a Children's Code Commission appointed by the Governor to codify the existing laws concerning children. The commission is to submit its report to the next session of the legislature. Members of the commission are: Judge Carroll T. Bond, chairman; Judge Morris A. Soper, Judge T. J. C. Williams of the Juvenile Court; Judge Jacob Mosen; George L. Jones of the Henry Watson Aid Society, Mrs. Charles E. Ellicott, chairman of the League of Women Voters; Miss Aimee Guggenheimer; and Miss Lavinia Engle.

That a state has a right to determine the amount of conservation of its natural resources and may exert its power to the fullest extent to discourage their waste was the decision handed down by the U. S. Supreme Court in the case of the State of Wyoming versus the gas carbon black producers. The State of Wyoming passed an act which prohibits as wasteful the burning and consumption of natural gas for its products without fully and actually applying and utilizing its heat for other manufacturing and domestic purposes. Of a possible 33 to 45 lbs. of carbon to be obtained from 1,000 cubic feet of natural gas, it was shown that the companies operating these gas wells obtained only 1.75 lbs. of carbon per 1,000 cubic feet of gas. Less than 5 per cent efficiency was considered highly wasteful.—Frederic Dannerth, in *Chem. Met. Eng.*, 25,104 (1921).

The Barrick Publishing Company, the J. C. Nichols Investment Company, and the Drovers National Bank of Kansas City gave life insurance policies to their employees as Christmas presents. The Barrick Publishing Company gave a $1,000 dollar policy to each employee. The amounts of the policies given by the other companies varied with the term of service ranging from $500 to $2,000.

Free baths are being installed in every new public school building under construction in Baltimore as well as in all old ones which are being renovated. The baths with an attendant always in charge are open to the public as well as to the pupils.

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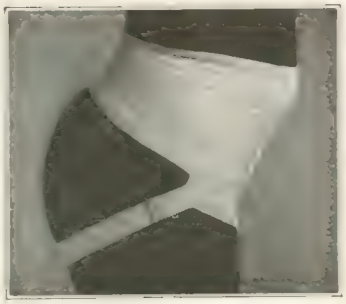

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The motion picture can be of great assistance in vocational education is the view J. J. O'Brien, President of the South Bend Lathe Works, takes in an article in December *Visual Education*. Films of various trades shown to boys in the sixth, seventh and eighth grades will enable them to choose the right occupation and avoid future industrial maladjustments, he believes.

A speech clinic for the special treatment of speech defects in ex-service men was established at the U. S. Public Health Service Hospital, No. 37, Waukesha, Wis., in January, 1920. Dr. Smiley Blanton of the University of Wisconsin organized the clinic and is in charge of its work. All the cases are under the supervision of a neuropsychiatrist and two psychologists, experienced in speech reeducation.

A Children's Bureau has been established as one of the divisions of the Pennsylvania Department of Public Welfare with headquarters at Harrisburg. Dr. Ellen C. Potter, formerly director of the Division of Child Health of the Pennsylvania State Board of Health, has been appointed in charge of the Children's Bureau. The Department of Public Welfare created by the 1921 legislature takes the place of the Board of Public Charities, the Commission on Lunacy, and the Prison Labor Commission. Dr. John M. Baldy is commissioner of the new department.

Governor General Leonard Wood has started an intensive campaign to improve health conditions in the Philippines. Circulars setting forth the causes of various diseases and methods of stamping them out have been posted throughout the islands. Four necessities for better living conditions in the Philippines mentioned by Governor General Wood were: More hospitals; more dispensaries; better distribution of medicines; additional nurses.

Two hundred two school children were enrolled in the speech-correction classes at Omaha, Neb., during 1921. Of the 129 with phonetic defects, 49 were cured, 13 improved 75 per cent, 33 improved 50 per cent, 22 improved from 10 to 25 per cent, and the remaining 12 dropped out or moved away. Of the 73 stutterers enrolled in the classes, 27 were cured, 16 improved 75 per cent, 16 improved 50 per cent, and of the remaining 14, 10 to 25 per cent showed improvement. The average cost for each case was $7.23.

A list of 221 titles of moving pictures on health is on file at the Bureau of Public Health Information, Health Service, New York County Chapter, American Red Cross, 598 Madison Ave. The Bureau will be glad to answer requests for information from health officials and workers about all kinds of health films.

Any health motion pictures available in New York City can be shown to any interested group through the offices of Edward Stuart, A. R. C., or E. G. Routzahn, chairman of Health Education and Publicity, of the American Public Health Association.

The death of two patients following treatment by chiropractors has caused the Chief Medical Examiner of New York City to issue a statement to all physicians that where death follows the treatment of persons by an unlicensed practitioner and there is reasonable ground to believe that such treatment contributed to the condition causing death, the medical examiner shall be immediately notified in order that an investigation may be made. The cases which prompted such a step were those of David Lebish, who died in St. Mark's Hospital, New York, from a ruptured appendix following treatment by a chiropracter and that of a man who died from blood poisoning after several chiropractors failed to recognize the nature of his malady.

The story of modern science is being told in popular terms by Prof. J. Arthur Thomson in "The Outline of Science," which is being published serially by a London publisher. The book is an attempt in simple language to trace the development of the latest accepted scientific ideas on life and the universe. George Newnes, Ltd., Southampton Street, Strand, is the publisher.

The International Board of the Rockefeller Foundation has accepted an invitation to cooperate in the reorganization of public health activities of the Philippine Islands, and will lend the services of certain members of its staff as consultants to the Island officials. The Board will assist in coordinating health activities into a department of health, in developing the medical school of the University of the Philippines, and will provide post-graduate instruction in public health. Fellowships for advanced study in the United States will be offered and training of public health nurses will be established. Dr. Victor G. Heiser, Director for the East of the International Health Board, and formerly Director of Health for the Philippine Islands, will assist in carrying out the program.

The Indiana State Board of Health has established a new division known as the Housing Division. W. F. Sharpe, architect, is director, and is assisted by Albert E. Wert. Among the duties of the division are to make tenement house surveys and to pass upon plans and specifications made by architects of hotels, lodging houses and tenements. This is the fourteenth division attached to the Indiana Board of Health.

A Will

"To my wife: I leave my house with its first and second mortgages.

"My piano player on which there is only a matter of $220 more to pay.

"My automobile and the privilege of making the rest of the 'easy payments.'

"My life insurance policy of $1,000 on which there is a policy loan."—*Judge.*

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Energy Requirements Studied

The *Boston Medical and Surgical Journal*, March 3, 1921, publishes a study of the energy requirements of girls from 12 to 17 years of age, from the Nutrition Laboratory of the Carnegie Institution of Washington. The laboratory has for one of its major problems the determination of the basal metabolism of the human from birth to old age. That of adults is affected independently by at least four factors—sex, wage, height and age. There is a distinct increase in metabolism, with increasing weight and height, and there is a distinct though slight decrease with increasing age.

Cooperative Educational Work in Virginia

A note from the Cooperative Education Association of Richmond, Va., says that there are over 1,300 Community Leagues in the state, with a membership of more than forty thousand. The previous year they raised over $200,000 for local improvement. They organized, among other things, a "Better Health Month" during which time each League planned to hold special health meetings on subjects of community interest, such as the sanitation of school toilets, safe drinking water, health rules, school health leagues, and other factors conducive to health, such as ventilation, etc.

Evolution in Tuberculosis Treatment

A consideration of the historical background of present-day methods of tuberculosis treatment emphasizes the progress made and places the credit where it belongs—to the discrimination of early medical men who observed and measured results and the gradual development of a successful regime which could be universally applied. Tuberculosis is one disorder which has been made the subject of consistent study and persistent socio-medical effort and it is one disease in whose death rate there is a marked and steady decline.

The following quotations are taken from *Medical Inquiries and Observations* by Benjamin Rush, M.D., published in 1809:

Doctor Latimer of Wilmington had been long afflicted with a cough and an occasional haemoptysis. He entered into the American army as a surgeon, and served in that capacity till near the end of the war; during which time he was perfectly free from all pulmonary disease. The spitting of blood returned soon after he settled in private practice. To remedy this complaint, he had recourse to a low diet, but finding it ineffectual, he partook liberally of the usual diet of healthy men, and he now enjoys a perfect exemption from it. . . .

In regulating the diet of consumptive patients, I conceive it to be as necessary to feel the pulse, as it is in determining when and in what quantity to draw blood. Where inflammatory diathesis prevails, a vegetable diet is certainly proper; but where the patient has escaped, or passed this stage of the disease, I believe a vegetable diet alone to be injurious; and am sure a moderate quantity of animal food may be taken with advantage.

Doctor Way of Wilmington informed me, that a certain Abner Cloud, who was reduced so low by a pulmonary consumption as to be beyond all relief from medicine, was so much relieved by sleeping in the open air, and by the usual toils of building a hut, and improving a farm, in the unsettled parts of a new country in Pennsylvania, that he thought him in a fair way of a perfect recovery.

Reduction in Tuberculosis

A NOTE of encouragement appears in Volume II, No. 3, of the *Statistical Bulletin* of the Metropolitan Life Insurance Company showing a remarkable decline in the prevalence of tuberculosis during the past decade. "These reductions," says the statistician, "are greatest at those age divisions of life when the tuberculosis death rate is highest, where it creates the heavy and social damage in terms of broken and dependent families and where it removes wage earners from industrial life at a time when productive effort counts for most." The mortality rate in 1919 and 1920 for white males between twenty-five and forty years of age was about one-half the rate for 1911 and 1912. Reductions appear in other age groups among females, though to a lesser extent. The report concludes that "it has been possible for all community forces working together to modify the environmental and perhaps also the hereditary factors in tuberculosis as to reduce very materially the number of lives formerly lost to society on account of this disease."

School Inspection in Belgium

Announcements recently made concerning the medical inspection in schools in Belgium state that while provision was made for inspection in 1914, on account of the war it was not carried out except in large cities. Government regulations of March 25, 1921, order medical inspection in all public and nursery schools and in private schools subsidized by the Government. The law prescribes, among other things, that children be examined upon entering school and at least once during each school year.

Collection of Dust in Factories

The problem of dust in a factory may be accompanied by serious consequences. Insanitary conditions, waste, and inefficiency may result from unintelligent handling. Careful collection and attention to cleanliness will lessen the compensation liability, reduce fire insurance, and minimize the loss through sickness. An article of March 1, 1921, in *Factory* discusses the methods of removing dust, the various appliances through which air can be conveyed.

Dust is divided into that which is floating and that which is settled. An explanation is made of the various ways of removing each variety under different conditions. There is also a discussion of the merits of the various dust removing systems.

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A New Work on Industrial Psychology

A recent book on industrial psychology by Bernard Muscio deals largely with the contributions of psychology to the art of industrial management in a clear and convincing way. The author believes that industrial accidents caused by fatigue are comparable to typhoid fever caused by impure drinking water. The fatigue element in one case should be eliminated just as the impurities in the other.

In a discussion of the application of scientific principles of selection, the author believes they are not practicable or just in the case of skilled men, but he sees no reason why they should not be applied to children.

The concluding chapter gives a clear cut analysis of the common opposition of labor to scientific management, motion study, and task setting. Mr. Muscio sympathizes with the worker's point of view, but believes that a change from haphazard to scientific methods should be made.

Treatise on Functional Nervous Disease

The object of "Functional Nerve Disease," a book recently issued by H. Crichton Miller, A.M., M.D., is to present in an epitome of war experiences for the practitioner a concise picture of the functional neuroses of war time in such a manner that "he may be able to apprehend the outstanding lessons taught by the experience of the great war in this department of medicine."

The volume consists of twelve chapters written by ten medical officers who have had experience in treating war neuroses. The editor calls attention to the fact that necessarily there will be found divergencies, repetitions, and even apparent contradictions in these various chapters, for which reason Chapter XII consists of a summary by William McDougall, in which the main points of agreement of these various authors are stressed.

It appears to the reviewer that a medical practitioner unfamiliar with the neuroses would be likely to be confused somewhat by the arrangement of the material. This arrangement is, of course, unavoidable because of the selective type of subjects chosen by the various authors. The chapter upon differential diagnosis, while short, contains material of considerable value. Four chapters are devoted to the treatment of these disorders. One deals with the physical treatment, one with suggestion and persuasion, one with institutional management, and one with the management of the individual.

The volume may be recommended as one of great interest, affording, as it does, an opportunity for obtaining the viewpoints of several representative English neurologists. Especially interesting, in view of the very stubborn resistance, some years back, of the English neurologists to the philosophies of Freud, is the more or less general acceptance of the conception of repression, regression, unconscious mental conflict, and complexes. It may be said that some care is exercised in stressing the fact that the teaching of this book "does not require readers either to pervert wholly the meaning of the words sex and sexual, or to see the origin of neurosis in a very hypothetical sexuality of infancy."

Much of the subject matter deals with types of reactions with which the American physician has become familiar in recent years. As a single volume the book does not fulfill the requirements of clearly defining and describing war neuroses for the general practitioners.

Oxford University Press, New York, 1920

The Hysteria of Lady Macbeth

The tragedy of Lady Macbeth is discussed in a recent contribution by Isadore H. Corfat, M.D., in a short contribution which the author characterizes as "a study in applied abnormal psychology and its object is to lay bare the fundamental mental mechanisms in one of the most prominent and interesting of artistic literary creations. The interpretation given by the author, namely, that Lady Macbeth is an accurate example of hysteria, is of some interest. He introduces his analysis of the problem of Lady Macbeth with a short dissertation upon the subconscious mental processes, the relations of somnambulism and hysteria, and psychoanalysis.

If this volume is intended for readers who are familiar with the modern trend of psychology the brief explanation contained in the first few chapters will suffice to render the subject matter relative to the hysteria of Lady Macbeth intelligible. Under this condition it would hardly seem necessary to present the introductory chapters at all. If, on the other hand, the contribution is intended to reach a more general reading public, it is doubtful if a clear conception will be obtained of this very interesting presentation.

Moffet, Yard & Co., New York.

Medical Supplies Asked for Russia

Chairman Kahn of the Military Affairs Committee has introduced into the House of Representatives a resolution for turning over to the American Relief Administration the surplus medical supplies of the Army, to the value of $4,000,000. Medical and hospital supplies in most localities of Russia are reported as entirely exhausted. With 50 per cent of the children in some sections suffering with malaria, there is not even quinin available for their treatment. According to the report of Mr. Hoover, the American Relief Administration is feeding 1,400,000 children.

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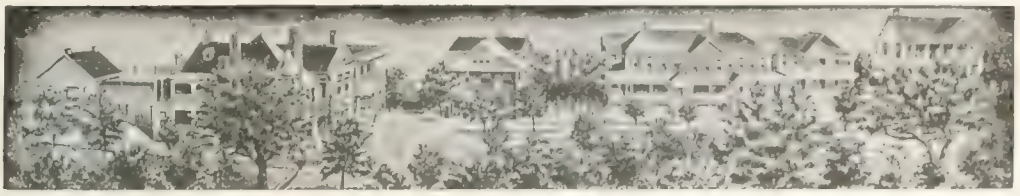

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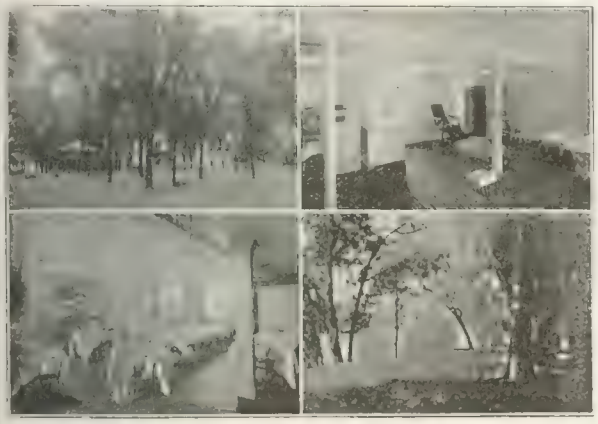

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Frank P. Norbury, A.M.M.D., Medical Director. Albert H. Deltear, B.S.M.D., Superintendent.

Barnard Girls Become More Robust

Barnard girls are getting more robust. They are less nervous than they used to be. Provost William T. Brewster, Acting Dean of Barnard during the recent absence of Dean Gildersleeve, emphasized in his report the fact that much better attendance at recitations and lectures than in previous years was now the rule.

Dr. G. Alsop, the college physician, and Professor Agnes Wayman, head of the department of physical education, both amplify the statement, and say that the health of the students has been in an unusually satisfactory condition during the past year. The periodical examinations show very encouraging gains in health.

Barnard freshmen and sophomores are required to take three periods a week in the physical education department work. Two of these must be gymnastic work; the other may be dancing, basketball, swimming or baseball. The gymnasium work may be corrective, remedial or otherwise, depending upon the girl's rating.

Two periods a week are required of juniors and seniors, and this is elective work. They may choose anything they are physically fitted to do. The majority of the girls, however, devote four or five periods a week to work of the department, which is easily explained by the fact that it ranges from swimming and dancing through the field of sports to actual gymnasium work.

Barnard students are thoroughly examined in all respects at the beginning and end of the freshman year and at the end of the senior year. These are full physical examinations. The girls show marked gains from the work, says Professor Wayman, and the gain is shown not only in the change of figure, strength tests, expansion, girths, etc., but in actual health, lack of absence from classes and increased ability to study.

Professor Wayman produced an armful of shoes of strictly orthopedic last, and of various makes, which she said were all good.

"I tell them that if they will wear sensible shoes all day they may punish their feet with any kind of silly slippers for a little while at night," she said. Girls with foot defects are given special training in groups and shown how to use their feet and made to do corrective exercises with them. The exercises are definitely prescribed and progressive improvement recorded.

Pan American Conference of Women

Miss Grace Abbot and Miss Mary Anderson of Chicago will lead the discussions on child welfare and women in industry at the Pan-American conference of women to be held during the convention of the League of Women Voters in Baltimore next April.

Study Conduct in Health Examinations

Mental and deportmental tests should be perfected as a part of health examinations for children, according a statement of Dr. C. W. East in connection with an account of the State Fair Better Babies Conference of Illinois. Many parents object to having such grades as "over timid" or "resistant" given to children who, they insist, "are not timid at home," overlooking the fact that the child's attitude toward strangers is the point on which he is being scored. The September issue of *Illinois Health News* brings out the connection between the child's unsocial tendencies and the health and happiness of his later life. The only corrective is early mental hygiene.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

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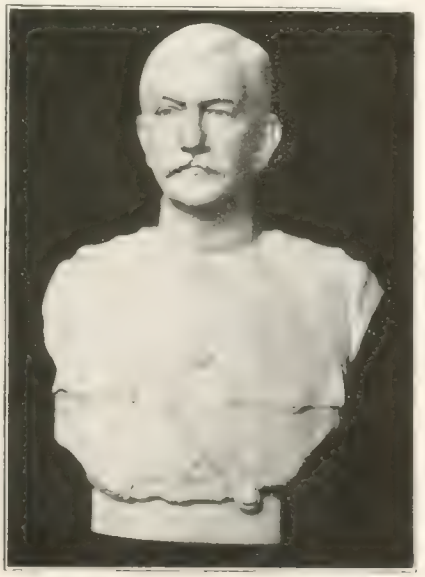
Gorgas Memorial Institute a World Benefaction

To Extend the Work of Disease Prevention for the Benefit of Our Own and Future Generations

BY W. C. BRAISTED, REAR ADMIRAL, U. S. N. (RETIRED), WASHINGTON, D. C.

FORMERLY men memorialized their heroes in stone, with the result that the monuments of the world are for the most part retrospective, representing some peak of past achievement, but exerting no vital force of inspiration or restraint except as they are reinterpreted by successive generations. And yet, if civilization is to carry on, it is through uninterrupted cumulative achievement; and the most enduring memorial to any man is the provision of the means by which to perpetuate his work. Especially when a humanitarian achievement has been made possible by the unusual skill or the clear vision of one man does such perpetuation seem desirable. As this applies to the work of General Gorgas, he may well be considered as the personification of the public health era and the plan of the Gorgas Memorial Institute in Panama a truly representative enterprise. Established in a country unhappily known as the pest hole of the Tropics, which by his efforts was transformed into one of the healthiest places on the face of the globe, the Institute will afford opportunities complete in every detail for trained research men and scientists from all over the world to work together upon the common problem of how best to prevent and eradicate disease.

Anyone who has seen the old Panama at the time of the abandonment of the work of the first canal, involving so much wasted energy, life, and money, with its abandoned equipment and the evidences of unsuccessful labor, and the thousands of unknown and unnumbered graves of its workers, cannot help but be struck with the present aspect of Panama, its splendid sanitation, its beautiful cities, its fine hospitals, and the magnificent accomplishment of the completion of the work of the canal, making it one of the most beautiful and salubrious spots in the world.



Bronze bust of General William C. Gorgas, made from life by P. Bryant Baker, sculptor, Boston, which will be placed at the entrance of the Memorial Building in Panama.

The accomplishment of this great work and the sanitary regeneration of Panama are due to the efforts of the late William C. Gorgas, United States Army. To his efforts more than to any other agency the success of this work must be accredited. His earlier work in the southern states and the West Indies, particularly Cuba, his later efforts in Ecuador and Peru, and his projected work in Africa, give one an idea of the vast field of splendid endeavor which he accomplished and would have continued had his life been prolonged. His reputation has gone forth to all the world, and he is loved and revered in every household. Perhaps no single life has ever made possible so much for the good and well being of humanity as has that of General Gorgas.

Many types of memorials were considered to do honor to this great man, but I feel sure that the establishment of this memorial, The Institute for Research in Tropical Diseases and the Study of Preventive Medicine, carrying with it not only a permanent monument to his memory, but one that will continue his work and be of greatest value to the welfare of the entire world, will be considered the ideal commemorative effort. Panama, situated in the heart of the Tropics and in the midst of the Central and South American States which offer a splendid field of work of this kind, would seem to be the ideal location furnishing a wealth of material for the institution which is brought into existence.

Design of the proposed Gorgas Memorial Institute to be erected at Panama City. (From the *Bulletin* of the Pan-American Union.)

The honor for the conception of this idea and of bringing it into actual existence must be given to Dr. Belisario Porras, the President of the Republic of Panama. It was owing to his efforts and those associated with him, such as the Hon. Joseph Lefevre, the representative of the Panaman Government in Washington, that a Provisional Board was established to begin and carry on this work. Deep interest was evinced by all who have been approached on the subject in every part of the world, and especially by the Presidents and representatives of the Central and South American Republics, to whom the project was made known largely through the efforts of Dr. Franklin Martin, who visits these countries from time to time in the interest of the American College of Surgeons.

The preliminary plans of organization and control have been completed and the Gorgas Memorial Institute comes now to the attention of the public as a great and practical humanitarian movement, now making its appeal for support to the minds and hearts of the people. Dr. Richard P. Strong, director of the Harvard University School of Tropical Medicine, has been chosen as scientific director. Associated with Dr. Strong on the Board of Scientific Directors are: Dr. C. C. Bass, Director, Laboratory Clinical Medicine, Tulane University, New Orleans; Dr. W. G. MacCallum, Professor of Pathology, Johns Hopkins University, Baltimore; Dr. W. G. McCoy, Director, Hygienic Laboratory, U. S. Public Health Service, Washington; Lieut.-Col. J. F. Siler, Assistant, Division of Sanitation, U. S. Army, Washington; Rear Admiral E. R. Stitt, Surgeon General, U. S. Navy, Washington; Dr. E. E. Tyzzer, Professor of Comparative Pathology, Bussey Institute, Boston.

Executive officers are: Rear Admiral W. C. Braisted (retired), President of the Board of Directors; E. J. Stellwagen (President of the Union Trust Company), Treasurer; Arthur F. Robbins, Executive Secretary.

The Advisory Council, of which Secretary of State Charles Evans Hughes is a member, consists of the diplomatic representatives of practically all tropical countries, as well as a number of eminent physicians and surgeons and health officers, representing the leading medical, surgical, and public health associations of the United States.

The personnel of the Council includes such men as: Charles Evans Hughes, Secretary of State, U. S. A.; J. E. Lefevre, Chargé d'Affaires, Republic of Panama; Señor Don Beltran Mathieu, Minister of Chili; Tomas A. Le Breton, Ambassador of Argentina; Señor Don Federico Alfonso Pezet, Ambassador of Peru; Augusto Cochrane de Alencar, Ambassador of Brazil; Dr. Carlos Manuel de Cespedes, Minister of Cuba; Dr. Jacobo Varela, Minister of Uruguay; Dr. Julio Bianchi, Minister of Guatemala; Licdo. Emilio C. Joubert, Minister, Dominican Republic; Albert Blanchet, Minister of Haiti; Señor Emilio Chamorro, Minister of Nicaragua; Señor Adolpho Ballivian, Minister of Bolivia; Dr. John S. South, Minister to Republic of Panama; Brig. Gen. Charles E. Sawyer, U. S. Army Medical Corps; Brig. Gen. Robert E. Noble, U. S. Army, Medical Museum and Library; Rear Admiral Cary Grayson, Washington, U. S. Navy; Dr. A. J. McLaughlin, Assistant Surgeon General, U. S. Public Health Service; Dr. Carlos Chagas, Oswaldo Cruz Institute, Brazil; Dr. Henry S. Wellcome, Washington; Lieut. Gen. Sir John Goodwin, Whitehall, London, England, Director, Army Medical Services; Sir John Y. S. MacAlister, London, England, Head of the Royal Society of Medicine; Sir Patrick Manson, London, England, London School Tropical Medicine; William K. R. Simpson, London, England, President,

Some of the original incorporators of the Gorgas Memorial Institute at Panama. (From left to right) Dr. Richard P. Strong, Harvard University; Surgeon General W. C. Braisted, U. S. N. (Retired); Hon. J. E. Lefevre, representing the Republic of Panama; Surgeon General Merritt W. Ireland, U. S. Army; Dr. Franklin H. Martin; Judge John Bassett Moore.

Royal School of Tropical Medicine.

Associations represented on the Advisory Council are the American Medical Association, American College of Surgeons, American Public Health Association, American Society of Tropical Medicine, Southern Medical Association, and Southern Surgical Association.

The Panamanian Advisory Council consists of: Colonel Henry C. Fisher, Health Officer, Canal Zone, Panama; J. B. Duncan, Secretary, Public Instruction, Panama; Dr. Lewis B. Bates, Chief of Health Laboratory, Panama Canal, Panama; Major E. A. Bocock, Superintendent, Santo Tomas Hospital, Panama.

Location in Tropics Advantage

The subject of tropical medicine has been one of deep interest to all medical minds in every part of the world. While much has been done in our largest and best educational institutions to endeavor to carry on research work and to acquire knowledge of tropical diseases, and a great deal has been accomplished by many special institutions and departments, such as the London and Liverpool Schools of Tropical Medicine, and the work of such institutions as Harvard, Johns Hopkins, the University of California, and many other organizations of this kind, nevertheless all this work has been limited and hampered by the dearth of material for such study and research and on account of the distance of these institutions from the tropical centers. The Tropics, so prolific in vegetation of all kinds, seem equally fertile in the development of all types and kinds of dread diseases, which tend to make them unsuited and impossible of habitation until careful sanitation makes them safe. Among the diseases which suggest themselves as possible to study in this institution are malaria, yellow fever, plague, dengue, human trypanosomiasis, beriberi, pellagra, leprosy, the various helminthic infections, cholera, the various mycoses, the myiases, etc. Added to these are the many unknown and undiscovered banes of existence which remain to be found out and to be made innocuous.

It is to be remembered that the dangers of tropical diseases is not confined to the Tropics alone, but on account of world intercourse are being constantly carried to the non-tropical countries, endangering their health and well being. The corps of men especially skilled in tropical and preventive medicine may be expected to exert from this Institute the control of diseases in a way that never was dreamed of in days gone by. The splendid chain of hospitals already built and building in Panama, which are the equal of any in the world, furnish opportunity for the care, isolation and treatment, and study of any persons that may be found. It is expected that research workers everywhere will take advantage of the privileges offered at this institution and that scholarships will be developed in the great educational institutions which will enable deserving young men of high attainments to acquire through the Gorgas Memorial Institute a thorough grounding in this work of prevention that means so much to the well being and happiness of peoples everywhere.

The opportunities for training will be supplemented by the Gorgas School of Sanitation, established in response to the united demands of the Health Officers of the Southern States, which will deal particularly with study and experimentation having to do with health problems peculiar to the Southern States, the primary object being to develop sanitary engineers, county health workers, and public health nurses. The scientific program of the Institute is tremendously practical, the organization is well planned, the ends no less than the elevation of health standards and the promotion of scientific sanitation everywhere. One can readily picture the possibility of extending beyond the confines of Panama the overcoming of tropical fatality and the rise again (in the words of Gorgas) of great tropical empires, "such as Egypt and Babylon, and that from the period of Panamanian sanitation will be dated the beginning of the great white civilization in these parts." Indeed, it may well presage the rise of a sanitary era of "health to all people, in all lands."

Dr. Belisario Porras, president of the Republic of Panama and a member of the board of directors who initiated this movement. Harris & Ewing photograph.

Popular Medical Misconceptions

MEDICINE is not an occult art and it is not in unusual conditions or spectacular cases that the practising physician must look to his laurels, but in the conscientious routine care of the most common disease conditions. Medical practitioners and investigators stand in the unique position of continually trying to prevent the very things by which they earn their livelihood. The idea of prevention permeates medical practice: the patient with a common cold or sore throat is urged to keep away from his neighbors; those with severe infectious diseases are quarantined. Every effort toward early diagnosis of obscure conditions is an effort at prevention either of complications in the individual or in the case of certain diseases, like tuberculosis, prevention of the spread of the disease to others. No program of disease prevention is possible by paternal or bureaucratic methods. To be successful, the prevention idea must spread to the people and be democratic in spirit as well as in application. In everyday life pretty much the same idea of cooperative effort is necessary for any kind of practice.

Yet despite fully trained and well intentioned physicians, we continue to have a high death rate from preventable causes. Why do so many defects go unremedied, and so many patients present themselves for treatment only in the last stages of disease? Personally, we believe the reason to lie in certain well grounded but popular medical misconceptions. Having not the slightest conception of the complexity of the human organism at work, it is commonly believed that a disease condition is confined to one offending organ and that some drug—any drug, perhaps—should be able to cure it. It is not generally understood that a spasm of pain may be referred to a remote organ and that any train of symptoms would necessarily call for some study and investigation on the part of the examining physician; but the credulous public, so ready to trust anything except exact science, still thinks that a pain in the back means kidney disease; in the stomach, indigestion; that headache is headache simply, and that for any of these conditions a prescription should afford instant relief. Not only that, but they pass medical advice around and, even at this late day, peddle prescriptions!

It is pain and disturbed activities that people resent. They tolerate at great length the most persistent signs of disease, and their symptoms, self-interpreted, are often neglected till remedy becomes an impossibility. It is most disconcerting to observe how prone people are to interpret their own symptoms. "When a young man has indigestion he thinks he has heart disease; when an old man has heart disease, he calls it indigestion," and the judgment of neither is of any value in his own case.

It is necessary, then, in the interest of early treatment, for a patient to understand that persistent headaches, chronic "indigestion," gradual loss in weight, or increasing lassitude are subjects for study, not guesswork. Confidence in the physician consulted is the next essential. Getting at the facts in any case requires the utmost frankness on the part of both physician and patient. The remedy will usually involve some change of habit or occupation not readily undertaken and impossible to enforce without the fullest cooperation on the part of the patient. In these days of psychic fads one scarcely needs to argue the importance of mental *rapport* between the physician and his patient. The difference between the attitude of enthusiastic support of the prescribed measures and mental resistance, or even the passive acceptance of a physical handicap, may mark the difference between hopelessness and a safe outcome in treatment.

It is partly for this reason and partly because without a knowledge of the physical and mental make-up of the patient the physician cannot acquire an adequate background of the disease picture that the habit of "shopping around" is so pernicious. A patient, to be understood, must be subjected to thorough initial study and periodical "checking up." Even if the patient who shops around is always lucky in his choice of a physician, he has at least the added worry and expense of repeated examinations and faces the danger of delayed diagnosis, and it is the "shopper" on whom the cults and charlatans thrive. Sooner or later it is the "shopper" who resorts to self-medication. It is important to remember that many people take poisonous drugs with more or less regularity under the mistaken notion that they are beneficial because they relieve some symptoms.

Perhaps it is too much to expect the people to seek rational guidance in health matters until they are more inclined to assign to health conditions the importance they deserve. Almost any material thing seems more urgent in its appeal than a health venture. There is nothing dramatic or appealing about preventive measures self-applied. Habits of procrastination delay the "stitch in time." The working girl will cut down on lunches to buy furbelows; the housewife with mistaken sense of economy will disturb the balance of the family ration. The resultant lassitude or chronic headache remains unquestioned and stands fair to be accepted as inevitable. Somehow people must come to feel that physical well being is an indispensable asset and its lapse an affair of immediate concern. Minor complaints, as inefficiency, irritability, lack of endurance, must be investigated as to their physiological basis. Such an attitude, coupled with a generalized knowledge of certain outstanding signs in the more common disorders, should serve as the best health insurance available.

The University of Iowa made a recent inquiry as to popular notions concerning psychology which brought out the most astounding contradiction of ideas. The insurance companies tell us that certain of the degenerative diseases claim more and more of our population. Does the public know what are the danger signals in Bright's disease, for instance? Or the unfavorable signs in the high blood pressure series? Or when so-called "indigestion" calls for a surgeon instead of castor oil? We propose to discuss a series of disease pictures of this character for the benefit of the interested public, for if preventive medicine is to become effectual, the physician must be called before he is needed to sign the death certificate.

The Interpretation of Symptoms

When people cease to think they can interpret their own symptoms, the sale of patent medicines will fall off. One reason for the popularity of many patent medicines lies in their methods of appeal. The standard picture of the poor crippled man with back bent, one hand pressed to sore spot, and the other holding the bottle of kidney remedy, is quite prophetic of the good the poor sufferer may expect from the medicine. It is not only prophetic; it is much more pathetic. Although this symbol is fortunately becoming almost a thing of the past, the picture still holds an object lesson in the peculiar psychological reaction of patients to various symptoms.

Nothing is more difficult to the trained diagnostician than the interpretation of the complex symptomatology offered by even a simple "case," but the sufferer from a pain in his back immediately hitches the pain to his kidneys,—organs which he knows are also located in the back. The medical man knows how rarely serious diseases of the kidneys are associated with backache. The advertising proprietor knows it also; he knows likewise that the fellow with the pain in his back usually thinks he has kidney trouble. So the sufferer buys the medicine, takes it, the pain disappears,—and, behold, he is cured of serious kidney trouble!

This illustration serves excellently as an example of the manner in which the average patient waits for the appearance of pain before he is willing to consider himself sick. The onset of symptoms of all except very acute kidney diseases is insidious and does not call the attention of the individual to any abnormality. He will not consider or even admit the possibility that getting up at night to urinate is a sign of serious kidney disorder. Yet this slightly disturbing symptom is frequently the first and only sign of trouble and, if noticed early, may make possible the prevention of much more serious trouble. Osler wrote many years ago on the advantages of finding a trace of albumin and a few casts in the urine of some men over fifty years old, meaning that such early revelation of renal disorder often enables the prevention of later complications. But it is very difficult to make the average busy man realize that it is distinctly abnormal to have to get up at night, so he waits for the occurrence of pain somewhere before it occurs to him to consult his physician. To the average layman pain in the back belongs to the kidney; how can it be, he may say, that a pain in the head could come from disease of an organ so far removed from the head? Therefore he proceeds to wait until some pain becomes severe enough to cause him to ask for relief. Even then he will doubt the diagnosis, perhaps even discredit the ability of the physician who suggests the necessity of a thorough examination for such a simple thing as a pain in the head. The pain in the back is relieved by kidney remedies; why not the pain in the head by headache powders?

Guess Work is Tragic

Pulmonary tuberculosis is another disease standing out as a glaring example of the difficulty or unwillingness on the part of those affected properly to interpret the initial symptoms. The tragedy of advanced pulmonary tuberculosis could in many instances be averted if the patient knew a little more or a little less of the relative importance of various symptoms. As in trouble with the kidneys, the patient is prone to overlook what seem to be patent signs of trouble until the arrival of pleural pain and overwhelming weakness causes him to seek medical aid. Physicians are repeatedly called upon to examine tuberculous patients who give absolutely no history of a cough, but who nevertheless cough more or less continuously while giving their history. They seek aid for the pain, but they persistently ignore a long-continued decline in weight, night sweats, a little hack in the morning, lassitude, and general run-downness; but pain—in this particular disease—or, finally, seeing blood, wakes them up, often too late, to the realization that they are sick.

The real history of most cases of pulmonary tuberculosis probably does not begin with anything very definite, except in the comparatively rare instances of early hemorrhage. An early profuse hemorrhage is more often a life-saver than a killer. Calling attention in the most dramatic way to illness, the appearance of hemorrhage frightens the patient into seeking a physician. Yet hemorrhage in tuberculosis certainly causes fewer deaths than neglect of the less vivid, but more insidious symptoms of weakness, loss of weight, or the slight morning hack. It is perfectly easy for the physician to interpret the undramatic drab symptoms which paint a black picture; but before seeking medical aid the average individual seems to require a more vivid display of color, or a more rapid course than most diseases present.

One other disease may be used to compare the dramatic with prosaic symptoms. Excepting the large group of diabetics who are discovered by life insurance examinations, most diabetics do not consult the physician for the early symptoms which really paint the definite disease picture. Increased appetite, increased thirst, excessive urination to the average patient do not appear as particularly alarming symptoms, but in most instances they mean a disease which, if controlled early, may save life and if allowed to run on may destroy life. It is most difficult to understand why so many normal minded individuals are willing to go along with an array of abnormalities, whose presence must be noticed. They will wait for the development of a boil,—which hurts,—for impaired vision,—which interferes with a peculiarly susceptible organ,—the eye; or for pains in an arteriosclerotic limb before they stop long enough to inquire the reason for the earlier complaints. That in most instances such neglect is due to carelessness is evidenced by the histories of such patients. They do not complain of the increased thirst or appetite, and often on questioning are not even ready to admit their existence. They date their story from the onset of pain; and when attention is called to the fact that a tremendous loss of weight is practically impossible with such a short history they are still unready to acknowledge the long series of the other undramatic symptoms.

Chicago Health Officer

DR. HERMAN N. BUNDESON
Commissioner of Health, Chicago, Ill.

Dr. Herman N. Bundeson has been appointed Commissioner of Health of Chicago to succeed Dr. John Dill Robertson, who resigned in February. Dr. Bundeson is a graduate of the Northwestern University Medical School and of the United States Army Medical School at Washington, D. C.

He holds membership in the following societies: Chicago Medical Society, Illinois Medical Society, American Medical Association, Associated Military Surgeons. He is attending serologist of the Illinois Central Railway and a member of the Contagious Staff of the Illinois Masonic Hospital Association.

National Health Council Achieves Unification Through Common Service Committee

The Common Service Committee Serves as Coordinating Agent of Interests and Facilities

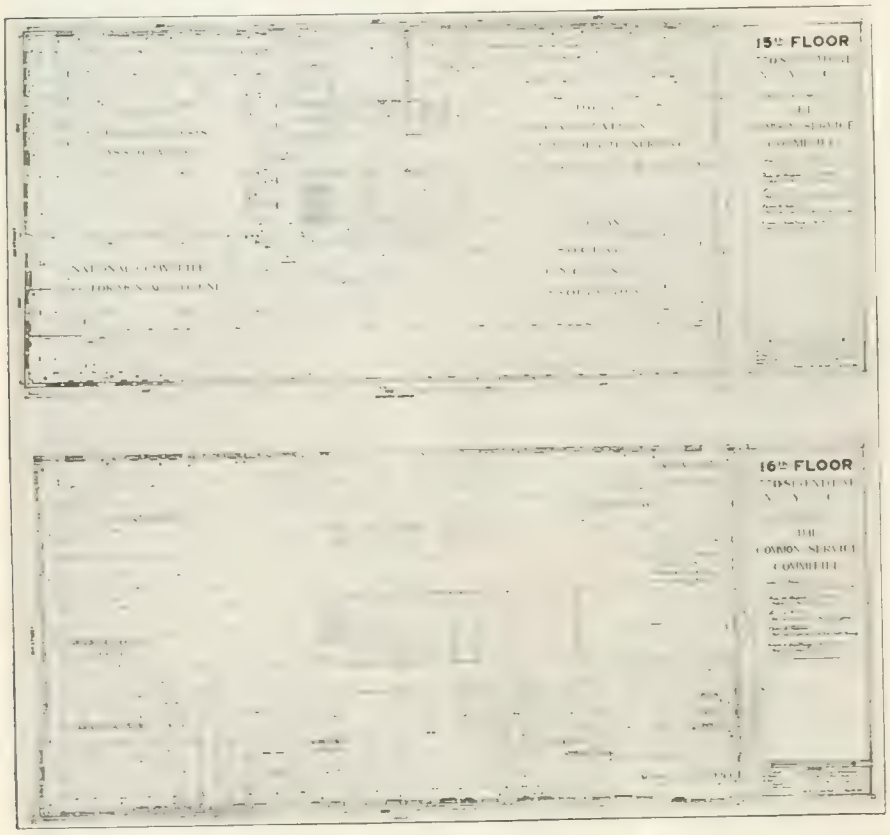
By DONALD B. ARMSTRONG, M.D., Secretary, Common Service Committee, National Health Council, New York, N. Y.

FARSIGHTED health workers for many years have felt the need of a body to study the coordination of the activities of the voluntary national health organizations. Their efforts resulted finally, in the spring of 1920, in an investigation to determine what the possibilities in this direction might be. A preliminary conference was called by Dr. Livingston Farrand, then Chairman of the American Red Cross, at which the entire matter was fully discussed, and a special health coordination study was launched with the financial aid of the American Red Cross.

On December 10, 1920, following the report of the coordination study, a number of leading voluntary health organizations met in Washington and formed the National Health Council, practically as at present constituted. The membership of the Council includes three types of members, direct, indirect, and conference members.

In the past the criticism that voluntary health agencies duplicated one another's studies and efforts might have been made with some degree of justice, but, with the establishment of the National Health Council, that criticism can no longer with any fairness be applied.

The National Health Council maintains offices in the Penn Terminal Building, New York City, where under the administration of a Common Service Committee, are located a joint library service, an account service, an editorial, purchase and sales, letter, shipping, and miscellaneous mechanical services.



Floor plans showing the location of the agencies taking part in the joint office arrangement.

Direct members now numbering ten include the American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Council on Health and Public Instruction of the American Medical Association, National Child Health Council, National Committee for Mental Hygiene, National Organization for Public Health Nursing, and the National Tuberculosis Association.

Indirect members, affiliated through membership in the National Child Health Council, three in number, include the American Child Hygiene Association, Child Health Organization of America, and the National Child Labor Committee.

The United States Public Health Service is at present the sole conference member of the National Health Council.

The Council is governed in the following way. Each of the member organizations appoints a representative and alternate to represent it at the quarterly meetings of the Council. Special committees have been appointed or otherwise created, the most important being the Business Committee, the Membership Committee, and the Common Service Committee. The last is technically an independent committee organized to administer the common activities and office quarters of the member organizations located in New York City.

The Council is financed by dues from its member organizations and by contributions from Foundations, other organizations, and individuals. The budget for 1921, contributed chiefly by the American Red Cross, was approximately $21,000. The plans of the Council have crystalized in the past year to some degree and the activities tentatively and experimentally initiated have met with a fair degree of success, seemingly justifying a somewhat greater budget for 1922.

Conference room of the National Health Council.

The National Health Council offers certain services, primarily for the benefit of its constituent members. Grouped under four main heads they include the information bureau; the bureau of special temporary services; projected services; and joint conference groups.

The information bureau publishes the *Monthly Digest* of current health news, thus making it possible for each organization to learn intimately what new projects are being planned, the results of current projects that are nearing completion, and the special fields of organization or other activities entered into by the members with whom they are not in constant direct contact.

In the field of legislative information the bureau issues from the Washington office bi-weekly bulletins on Federal health legislation. The Washington office also issues a series of reports on government bureaus. These reports attempt to give accurate pictures of the organization of the government bureaus, especially in regard to their bearing on health work, their interrelation and correlation with each other, and the significance of this interrelation to national health work. At Washington, also, in cooperation with the United States Public Health Service and other government bureaus, there is being developed a series of bulletins on state health legislation, covering those states having legislative sessions in the current year.

Maintaining a current calendar of conference dates is another service the information bureau offers. This is useful in avoiding conflict between important meetings and conferences in the health field.

In cooperation with the members of the Council the bureau undertakes certain special activities. A recent activity effectively completed was the launching of a Rotary Health Week from December 5-11, 1921. In cooperation with the request of the International Association of Rotary Clubs of America, the National Health Council suggested a program of activities, sponsored jointly by the Council and the Rotarians, which involved the launching of a National Health Week. Besides offering suggestions the National Health Council stimulated the newspapers and the efforts of its members in attaining maximum educational value for the campaign.

Another special activity of the information bureau is the lecture course on the organization and services of health agencies which was given in the Conference Room of the National Health Council in New York City. The course is designed to give the members of council staffs a picture of the functions of health agencies, how they may cooperate, and how their services may be secured. The New York office has established an employment service, interviews applicants for positions in health work, and suggests to organizations personnel to fill their needs.

Special Service Bureau

The "bureau" of special temporary services has evolved out of needs which have arisen, and is really a child of circumstance that has thrived during the period of stress. It is now well beyond the stage where there need be question as to its mortality. The American Public Health Association Health Institute, one of the major activities in connection with the Semi-Centennial of the American Public Health Association, was managed by the staff of the National Health Council through its bureau of special temporary services. The institute was operated entirely by the Council, the burden being thus removed from one of its members during this time when the Fiftieth Annual Meeting required all the attention of the American Public Health Association.

Another activity of this type was the Health Highway on which the voluntary health agencies who exhibited at the health show in New York were housed.

The Council has undertaken certain studies to consider ways and means for more effective correlating of nurs-

The joint library serving all the organizations which are members of the Council, or which share in the others.

Hall and information desk on the fifteenth floor.

ing supervision and the nursing service of certain organizations. Suggestions for the conservation of time and energy have come from this study.

The third service that the Council offers is that of recently initiated or projected services. A field service has been suggested by several member organizations aiming at the development of new channels of service, the coordination of field activities, and the offering of consultation and advice to local communities on organization, and other matters. Plans are now maturing for the launching of such a service, primarily for the benefit of the members of the National Health Council, to be underwritten by those members who wish to take advantage of such a cooperative activity.

Another projected service which has grown out of New York joint office interstaff group conferences is the statistical service. We may illustrate here how this type of conference group functions and how it may develop out of a discussion group into a functioning service. The statistical conference group is composed of the statisticians of the member organizations. The staff statisticians are guided in their conferences in a measure by the Executive Officer of the Council and certain outstanding authorities in the statistical field. Recently two organizations in the field of health, one a member of the Council, felt the need of statistical service, but their requirements did not justify full time workers. On the recommendation of the interstaff conference group which was asked for suggestions regarding ways and means, the Council recommended the pooling of the needs and statistical facilities of these organizations. To meet these needs a statistician will probably be engaged by the National Health Council, and the time and expense prorated among the organizations purchasing this service.

Still another service, which is projected and which is developing in much the same manner as is the statistical service, is the exhibits' plan of the Council. Certain organizations in the field of health and welfare, including official boards of health, have appealed to the Council for assistance in the matter of plans for educational exhibits. It has been suggested that the Council develop this service of exhibit planning and administration further. This is now under consideration by an exhibit conference group.

A further service, recommended to the Council by an American Public Health Association committee, concerns the health motion picture question. This committee recommended that the Council take over its functions and develop them along certain suggested lines. This recommendation, no doubt, reflects the recognition of the fact that the Council is in an advantageous position to develop information, standards, and methods in this field. Similar committees are also studying the fields of health plays and health publications.

The members of Council staffs who are interested in certain special activities, particularly those with which the Common Service Committee is concerned in the joint renting project, meet periodically in conference for discussion of topics of mutual interest and for the formulation of plans for further effective coordination. An illustration of their methods was given in the previous section in the description of the evolution of the statistical conference group. Groups functioning in this manner are the conference group on publicity and education, which is developing in the fields of publications and publicity, exhibits, motion pictures, and health plays; the statistical conference group; conference group of business managers, which meets periodically to discuss questions important to those concerned chiefly with the business operations of the offices; conference group of secretaries; conference group of librarians; group interested in the health of employees; and joint recreation committee.

The Common Service Committee is the result of a pooling of certain interests by members of the National Health Council, who, while retaining

The shipping department of the Common Service Committee.

complete autonomy, have agreed to share certain facilities to the ends that service might be increased, the cost of operations reduced, and equipment brought within the reach of the group which would otherwise be too great a burden for any one organization. This Committee offers facilities, among which are joint library service, an account service, editorial service, service of purchase and sales, letter service, shipping service, and miscellaneous, special, mechanical services.

The Common Service Committee has also taken over the renting arrangement for the group of agencies now in the Penn Terminal Building. Cooperation between the various members is freely forthcoming. A notable example of this type of exchange may be seen in the recent American Public Health Association Semi-Centennial. Staffs were borrowed, facilities exchanged, and in general there was evident during this emergency a complete unity of purpose, regardless of organization interests.

Certain organizations not members of the National Health Council are participants in the joint renting arrangement. They are American Nurses Association, Bureau of Social Hygiene and Committee on Drug Addictions, Maternity Center Association, National League for Nursing Education, New York Diet Kitchen Association, United States Interdepartmental Social Hygiene Board (representative). Additional social agencies having office space are Circle for Negro Relief, Committee for Study of Community Organization, Commonwealth Center, Eugenics Record Office, New York Community Service, National Probation Association.

The plans of the Council for this year naturally involve a continuation of the services described above, most of which have developed satisfactorily during the Council's first year. It is also planned further to develop the projected services, a few of which have been described above, including the field service, statistical service, the studies of exhibits, motion pictures, etc.

Another activity in prospect is the development of health educational material. This has been suggested and outlined, and now awaits only the necessary staff and finances. A study of health educational material in foreign languages has also been urged and a tentative procedure sketched, but with the limited staff the Council thus far has had to yield to more immediate demands.

Still another activity, which has been favorably considered, is the launching of a National Health Day. The experience with Rotary Health Week has made clear the fact that the Council in such undertakings with and for its members may count upon the enthusiastic support and cooperation of official and voluntary health organizations.

Letter service department of the Common Service Committee.

At the end of its first year, the Council surveys the land and finds a definite field for service. The Federal Government, together with the states, is the logical guardian of the nation's health. Certain activities in the field of health and preventive medicine are, however, of such a nature that experimentation and development can with advantage be carried on within the jurisdiction of private organizations, at least to a point where the experimental period is safely over.

With many voluntary agencies working in this field experimenting and testing out methods and materials, there is danger of overlapping and duplication. It is to reduce, in a measure, the chances for waste, and to enhance the opportunities for cooperative effort, that the Council enters into its second year of activity.

The officers of the National Health Council are as follows: Dr. Livingston Farrand, chairman; Dr. Lee K. Frankel, vice-chairman; Dr. S. F. Crumbine, recording secretary; Dr. William F. Snow, treasurer.

Common Service Committee consists of Dr. William F. Snow, chairman; Dr. Charles J. Hatfield, vice-chairman; Dr. Thomas W. Salmon; Mr. A. M. White; Dr. Donald B. Armstrong, secretary.

Direct members, their representatives, and alternates are: American Public Health Association, Lee K. Frankel, representative, M. P. Ravenel, M.D., alternate; American Red Cross, Livingston Farrand, M.D., representative, W. Frank Persons, alternate; American Social Hygiene Association, William F. Snow, M.D., representative, Bascom Johnson, alternate; American Society for the Control of Cancer, Frank J. Osborne, representative, Howard C. Taylor, M.D., alternate; Conference of State and Provincial Health Authorities of America, S. J. Crumbine, M.D., representative, Arthur T. McCormack, M.D., alternate; Council on Health and Public Instruction of the American Medical Association, Watson Rankin, M.D., representative, Frederick R. Green, M.D., alternate; National Child Health Council, Philip Van Ingen, M.D., representative, Courtenay Dinwiddie, M.D., alternate; National Committee for Mental Hygiene, Frankwood E. Willams, M.D., representative, alternate to be appointed; National Organization for Public Health Nursing, Elizabeth Fox, R.N., representative, Anne A. Stevens, R.N., alternate; National Tuberculosis Association, Charles J. Hatfield, M.D., representative, James A. Miller, M.D., alternate.

United States Public Health Service, conference member, is represented by Surgeon General H. S. Cumming, with Surgeon George W. McCoy as alternate.

The staff of the National Health Council consists of Donald B. Armstrong, M.D., executive officer; Lawrence Marcus, executive assistant; James A. Tobey, Washington representative; Helen B. Eveline, secretary and assistant. T. C. Edwards is manager of the Common Service Committee.

The Problem of the Working Mother

Marriage and Motherhood Should Not Be Cause for Dismissal of Woman from Work

By A. LOUISE McILROY, M.D., D.Sc., Professor of Obstetrics and Gynecology, London (Royal Free Hospital) School of Medicine for Women, University of London

IN discussing the problem of the working mother, I draw a distinction between marriage and motherhood, and it is my intention to deal with the question mainly from the point of view of the working mother, whether married or single, who has in her work the complications of pregnancy and the care of the infant.

The question of marriage, although involving that of motherhood to a certain extent, affects only the private life of the individual, and should not concern the employer, either public or private. In the case of a man worker there is no inquiry into his domestic affairs. According to the Sex Disability Act a woman must not be penalized because of her sex or on marriage, and any employer dismissing a worker because of marriage is contravening this Act. We had a recent example of such an infringement of the law when the St. Pancras Council dismissed several of its women workers, one being a woman doctor, because of marriage. The action taken by such a public authority is an interference with the liberty of the individual, a liberty which has been won after a hard struggle by those men and women who believe in the equality of the sexes. Such an action must not be allowed to pass without a vigorous protest; otherwise it will stand as a precedent. Yet how many women's associations have taken up the question with a view to righting its injustice? It is one of the most important economic questions which concern women's work and until it is settled satisfactorily, women will have to continue as casual workers as they have done in the past. Now that many men lack the worldly goods with which to endow their wives, marriage is becoming more and more a partnership where the woman contributes her share of financial help by means of her working capacity, be it brain or hand.

When women have once enjoyed economic independence, it is with great reluctance that they relinquish it, nor is there in the majority of cases any necessity for doing so on marriage until the problem of motherhood arises as a complication.

Since the economic urgency requires the presence of many women in industry and professions, the stand the British government has taken of dismissing a woman from service upon marriage is manifestly unjust and in contravention of the Sex Disability Act which states that a woman must not be penalized because of her sex or upon marriage.

The problem of the woman in industry is twofold, concerning itself alike with the effect of motherhood on woman's work, and the effect of her work on her health and that of the child. The gradation of work during pregnancy, the granting of leave, and a maternity endowment fund to which both the State and the parents contribute will solve in some measure the problem.

In the government services, women are dismissed on marriage no matter how brilliant their individual record may be or how important their work is to the state. Women workers under the Home Office are dismissed, but the blow is softened by the gift of a dowry intended to ameliorate to a slight degree their new conditions of dependence. In all the government offices women are dismissed on marriage, and only single women are taken on for employment. With such an example before them it is small wonder that minor local authorities follow suit. The educational authorities are at present sitting on the fence and hold the threat of possible dismissal over their married staff who have served them faithfully during the stress of war.

Is there any sense of justice or fair play in a state which closes useful careers to women who may have spent years in making themselves of the greatest value to their work, and yet keeps in employment the weaklings among men? Is it due to colossal selfishness on the part of some officials who appear content that a woman's sole energies which were directed towards the public good should on marriage be entirely absorbed for the use of one man?

Women do not want to be parasites, nor to hamper their men by increased expenditure. They want a degree of economic independence not only that they may afford to wait to mate with the man of their choice, but that they make marriage possible by contributing also to the house.

Equal work and equal pay is the demand of women, and as long as a woman does her work satisfactorily, her private life should be just as little the concern of her employer as that of a man. Women have yet to realize the power they have in the vote and that the solution of the problems dealing with women's work lies in their own hands.

The state makes celibacy and sterility compulsory among its women workers and thus it either loses their valuable work, or prevents the handing on of the capacity for good service to the next generation. If women were dismissed on marriage because of some supposed incapacity whereby their work suffered, there might be an element of reason in the matter; but when it is merely the opposition of a trade unionism among men who support their wives, to keep out those women who contribute as partners, one sees the narrow basis of it all. There is also a degree of opposition from single women who jealously guard the interests they have acquired by their individual exertions.

The state dismisses women on marriage, but it is not above taking advantage of the combined incomes of husband and wife in the income tax returns. It is a restraint on the marriages of those women who have private incomes or who earn them in professions where they continue as workers after marriage.

If women's work is to end upon marriage, then the prospect of marriage is the ruination of a woman's professional or industrial career, as she can never be more than a casual worker at the best. It is a question with many complications which cur-

tails the advancement of women in all branches of work, because marriage to most normally constituted women will present attractions which outweigh any career.

Evils of Such Dismissals

The dismissal of women on marriage leads to several evils. It delays marriage for men who cannot afford the upkeep of two people, and therefore encourages prostitution. It invites partnership without the ceremony of marriage. A single woman who procures abortion may continue at work while another woman on respectable marriage is liable to dismissal. From the economic point of view women with the prospect of marriage before them may be tempted to accept work at a lower wage than men and so undermine the value of men's work.

In places where only single women are employed there is no inducement for them to become skilled, and such women therefore remain at heart casual workers. Also, since many efficient women do marry and relinquish their careers the state suffers itself to be served by beginners and those with little experience. Such a condition of affairs has a serious aspect in professions such as medicine.

The celibate pioneers of women's work renounced everything for the good of their cause. They were group workers and personal sacrifice but added a joy to the work. But now that their work is more firmly established, women with but little knowledge of the first struggle demand the right to live under normal conditions.

The Working Woman's Problem

The problem of the working woman who expects to be a mother or who has the cares of a family on her shoulders is much more complicated in its solution. From the standpoint of an obstetric specialist, my concern is mainly with the health of the expectant mother and the care of the child. Pregnancy renders the average woman temporarily incapacitated for her work and must be faced boldly in the hope that some working solution may be found.

Public opinion must be educated to the fact that the state can neither afford to reduce its production of children nor dispense with its enormous number of highly skilled women workers. The present attitude of looking upon motherhood as a crime which causes dismissal from employment, just as drunkeness in a man, must be abandoned.

Motherhood is the highest function a woman can fulfil and it should rightly be a profession in itself; but it is as a rule so badly paid that it cannot be regarded as a lucrative profession. It is an ideal condition that the mother should make the home and the father concern himself with its financial support. But since the war, financial stress is so great that the maintenance of proper home conditions is in many cases a great anxiety and burden.

Among women of the better classes pregnancy can as a rule be arranged for and the care of the children deputed to skilled attendants. A woman can be just as good a mother although she may leave the bathing and combing of the children to others. Her method of rearing her family is her own concern provided she keeps in line with general public opinion and legislation.

Criticism is too frequently passed on a woman who, by training her mind, is enabled to keep up a high intellectual and spiritual atmosphere in her home, and who turns out sons and daughters of more value to the state than those of a household drudge who never thinks beyond the clothing and feeding of her offspring.

I do not for a moment advocate the neglect of a mother's duties in the home, far from it, but I do appeal for perfect liberty for such a woman to conduct her family affairs on the lines which she and her husband consider best. Among the better classes the good offices of more leisured relations are often obtainable. The maiden aunt, the modern substitute for the fairy godmother, deserves a place among the angels who guard the destinies of little children.

Home duties for women are diminishing rapidly owing to labor saving devices which in time will leave the housewife nothing to do. The charwoman is being replaced by the vacuum cleaner and the electric washer.

The problem of motherhood is greatest among the industrial classes and the war has had much to do in accentuating its difficulties.

The war has had three main influences upon woman's work. During the national danger the needs of the country were put before those of the home or individual. Women nobly responded to the call of the state and took up industrial work without hesitation. No doubt the condition of working at high pressure would have told eventually upon the health of the nation if it had been prolonged, but for the time, from a woman's economic standpoint, the conditions were almost ideal. Women felt they were wanted as workers and the demand was almost greater than the supply.

Now conditions are changed and women are dismissed on the least pretext. It is not surprising that marriage and motherhood are used as an excuse. But the war has shown forcibly the economic value of women's work and it was the recognition of this fact that gave the final impetus to the granting of the franchise.

The fact that women accomplished so much during the war, and in many cases without much previous training, has brought about a wonderful increase of confidence in themselves and in the work of other women. No longer is a woman's work criticised by her own sex because she is a woman attempting man's work; she is an individual standing on her own personal merits. No longer is her sex a handicap in other women's eyes.

Economic stress and financial difficulties are at present facing the country. Women must again come forward and help. It is no longer a disgrace for a woman to earn her own living or to maintain her family by her work. In many cases the father is disabled or cannot find employment and the main burden of the support of the family falls on the woman. The strain and anxiety involved in making ends meet may be just bearable if a woman can retain her profession or trade, and the financial advantage will make all the difference in the happiness and harmony of the home. The children will be enabled to have a better start in life. But the question is, can a woman serve the state by the reproduction of children and at the same time retain her employment or must she be debarred from handing on the legacy of her trained intellect to the future generation? It is well known that clever sons owe most to the clever mothers who have produced them.

There are two aspects to be considered: (1) What effect has the function of motherhood upon woman's work; and (2) What effect has work upon the health of the mother and her offspring?

Effect of Pregnancy on Work

The creative energy [illegible] woman is used up to a great extent in work, especially in brain work. The best work of the world is done during the reproductive period of life and provides the creative force that brings the fresh ideas for invention and research. It is the sex force which stimulates and renders the worker keen.

Celibacy is therefore possible in in-

dividuals when this force is used in directions other than in the actual reproduction of offspring. Where it is not so used there is over sex stimulation with bad results. When used for work there is less for reproduction and vice versa. Pregnancy temporarily diminishes the market value of women's work because in women the reproductive force when exercised is much more specialized than in men; although there is a degree of variation in the individual.

Dismissal of the expectant mother by the employers is brought about for the reason that risks are greater to the worker during pregnancy. If work is compulsorily abandoned for a time, it is difficult to regain owing to the keen competition at the present moment.

If pregnancy is to be avoided it entails various consequences: (1) celibacy on the part of some of the best intellectual and expert workers among women; (2) free love without the ceremony of marriage; (3) the use of contraceptive methods; and (4) the induction of criminal abortion.

Contraceptive appliances should only be used on the advice of the medical profession and for medical reasons. They should not be allowed to be advised or supplied by the laity. Their use is against the teaching of the churches. They undermine the health and morals of those who use them, and they will lead to the downfall of the Empire as they have done in the past histories of other great nations. Although they are advocated for the reduction in numbers of the casual and unemployable classes, in practice they are not possible for such classes. They are used by the middle classes because of financial strain, the increased love of luxury, and to avoid parental responsibility.

In women where the sex interest is stimulated by marriage harmful results follow the denial of the greater maternal instinct. They lead to unlimited sex indulgence and their use cannot be restricted to the married, owing to the present widespread knowledge of their so-called advantages. They turn a normal physiological act which should be spontaneous and the outcome of affection and impulse into a premeditated physical indulgence. Those members of the medical profession who are concerned with the study of diseases of women are almost unanimous in their condemnation of contraceptive methods except on the advice of the medical practitioner.

The casual classes can be diminished only by improving their economic conditions and so enabling them to become members of the industrial classes; at the same time preventing the destruction of homes and families among the regular workers who are forced to sink under the economic stress and strain of unemployment. If women after the completion of their child-bearing were enabled to return to their special work, there would be a great decrease in the numbers which annually go to swell the ranks of the unemployed.

The casual classes have little incentive to control their offspring, for while a beneficent state takes over and cares for the drunken, mentally deficient, and those afflicted with venereal disease, at the same time it penalizes the worker by taxation and by the dismissal of the women who are bravely endeavoring to keep their homes respectable.

Women of the industrial classes endeavor to conceal pregnancy for fear of dismissal; they therefore frequently suffer from ailments which, if unattended, have bad results upon their future health and that of their children.

Effect of Work on Mother

Motherhood is a normal physiological function and should be the natural right of every woman, but civilization makes it in many cases abnormal. It is advisable that the expectant mother should remain under her accustomed conditions as nearly as possible, provided they have no harmful effects upon her or her future offspring. Work, if not harmful in its effects, should be continued. The same conditions as to diet and exercise should be advised as before pregnancy occurred.

Many women just maintain a fair balance of health with difficulty, but if pregnancy is added that balance may be upset. Such women must be carefully watched and all symptoms dealt with, provision being made for modified work or in some cases complete rest.

The state, by the provision of a Ministry of Health with its care of the expectant mother and infant welfare, has at last shown itself alive to the value of the potential mother and her unborn child. An enormous machinery has been set in motion to guard the mother during pregnancy, labor, and convalescence, and to reduce the high infant mortality. The special branch of medicine known as obstetrics has made almost more rapid strides than any other during the last quarter of a century, and much is being done to find out by clinical observation and laboratory research methods which will tend to secure as healthy a future generation as possible.

The endowment of motherhood has now become a national question, and the one endeavor of all right-minded thinkers is to obtain for a mother every security during pregnancy and childbirth by granting permanent assistance when necessary to enable her to be relieved of all anxiety and worry.

In large industrial centers facilities for the care of the expectant mother are given by the ante-natal clinics of the maternity hospitals, also care during confinement, and post-natal advice. The children can be kept under observation at the infant clinics and welfare centers. In this way much of the chronic ill health due to pregnancy is diminished and the infant mortality reduced both before and after birth. But, if an expectant mother, owing to economic pressure, endeavors to conceal her condition and tries to do heavy work, it is not surprising that her health suffers and that pregnancy is often interrupted.

It has been advocated by a number of obstetricians that pregnancy should be notifiable in order to secure medical supervision for the expectant mother. But notification has several objections and the education of public opinion as to the advantages gained by attendance at a maternity clinic or seeking the advice of a medical practitioner, is of greater value. Legislation is not only unnecessary but frequently harmful in laying down rules which cannot apply to all cases.

The problem of the treatment of those infant diseases due to venereal disease, rickets and mental deficiency, will find a considerable part of its solution in the care of the expectant mother.

Motherhood must be looked upon as work for the state and provision must be made for the mother while undertaking that work, just as a soldier is provided for while defending his country.

Gradation of Work Advisable

Provision for motherhood must go upon two lines. As pregnancy means a temporary dislocation of the work, employers must be induced to make allowance for it by grading the work according to the capacity of the worker. A woman working in a light and cheerful factory with graded

work is under much better conditions than one who on dismissal has to take to "charing" with its long irregular hours and often unhealthy surroundings. Work involving the lifting of heavy weights is dangerous, but light manual work, especially where sitting is possible, is permissible up to the end of pregnancy. Such work was found to be satisfactory among pregnant women in munition factories, as Dr. Rhoda Adams of Leeds can testify.

Leave should be granted for pregnancy if advised by the medical inspector, just as one month's leave is laid down at present for the confinement. But there should be no fixed period of absence enforced as women vary so much in their capacity for work.

The child should be given an opportunity for being fed with the mother's milk by the provision of welfare centers in the factories where the mother can attend at regular intervals.

Many municipal authorities, while dismissing married women from their employment, are perfectly willing to act as wet nurses to their children rather than encourage employment with facilities for nursing and thus enable the mother to rear her child or at least pay for its milk supply when breast feeding is impossible. This alone would mean a great saving in the rates.

Maternity Endowment Fund

In order that women may retain their work and return to it when pregnancy is over, the employer must in no way be penalized, otherwise all endeavors to solve the problem of the working mother will be useless. Equal pay for equal work is the universal demand, but if the work suffers from some incapacity on the part of the worker, less remuneration must be accepted. For this reason, therefore, the reduced remuneration for the graded work of the expectant mother must be supplemented by a maternity endowment fund. To this fund the state ought to contribute a proportion, the rest being found by the parents of the expected child. It should be in the nature of an insurance fund for maternity leave, and the amount of benefit should vary with the individual's requirements and the time taken from work. Maternity leave should not be looked upon as a disability, such as sickness leave, but as the fulfilling of a natural function, on completion of which the worker may return to normal conditions and employment.

It has been used as an objection that endowment schemes will encourage illegitimacy, but this can be denied. No scheme for the treatment of the effects of immorality will increase immorality itself but rather tends to diminish it. The unmarried mother, by the provision of hostels where she can live and retain her baby, and at the same time earn a respectable livelihood in a factory or shop, has a much less chance of joining the prostitute class than one who has been compelled to live in idleness in a workhouse, and associate with those who are hardened to immorality if not to crime.

More education as to the protection of girls and the respect due to motherhood should be given to boys and men. Is there any indecency in such education in an age where the dissemination of advice as to the prophylactic treatment of venereal diseases is advised by a large section of the community?

The Sewerage System of Caracas, Venezuela

An Enterprise of Interest from Both the Sanitary and the Engineering Viewpoints

By Our Special Latin-America Correspondent

THE installation of the sewage disposal system of the city of Caracas, Venezuela, presents many interesting features both from the sanitary and the engineering viewpoints. Situated on the side of a mountain at an altitude of 972 meters above sea level, the city inclines at a varying gradient to the Rio Guaire which skirts a valley floor. The slope on which the city is located is broken sharply to varying depths by gullies which enter the river basin at right angles. These are called quebradoes and contain little streams carrying storm water and sewage. The buildings for the most part are constructed of stone or brick with tile roofs and the streets are paved with stone and concrete. The houses with their paved patios are closely placed and during the rainy season the storm water runoff is extremely rapid. At such times the quebradoes are well flushed but in the dry season, December to March inclusive, they dry up and become merely trickles of household sewage.

Here then, was a city of 80,000 persons, the capitol of an extensive country, rich in natural resources,

Note the sewer passing under bridges and opening for storm water. House drains enter sewer from either side.

which from its foundation in 1512 to 1919 had not even contemplated a well thought out sewage system. A few abortive efforts had been made, the covering of the quebradoes with an arched roof of brick, had been attempted in several places and a short trunk line sewer paralleling the river had been begun, but no complete plan on scientific lines had been made.

After various preliminary studies, the plan at present being put into force was made and was authorized on June 13, 1919. The project, which is highly original because of the peculiarities of the local terraine, as pointed out above, has been modified slightly to meet the knowledge gained as the work went forward. As a result, the Ministerio de Obras Publicas de Venezuela, under whose direction the construction is being carried out, has been able to do the work economically and well. The project, which was designed by Dr. German Jimenez, owes its genesis to the inspiration of General Juan Vicente Gomez, the President-Elect of the Republic and to the genius of Dr. L. G. Chacin Itriago, the Director de Sanidad Nacional who realized that the

Discharge gates for flood water peak loads. Where rain falls at times at the rate of three inches per hour, the overflow discharge is very rapid.

public water supply of Caracas could never be safe for human consumption until the leaky, uncharted system of drains, which at present intercommunicate with the water delivery system, had been abolished.

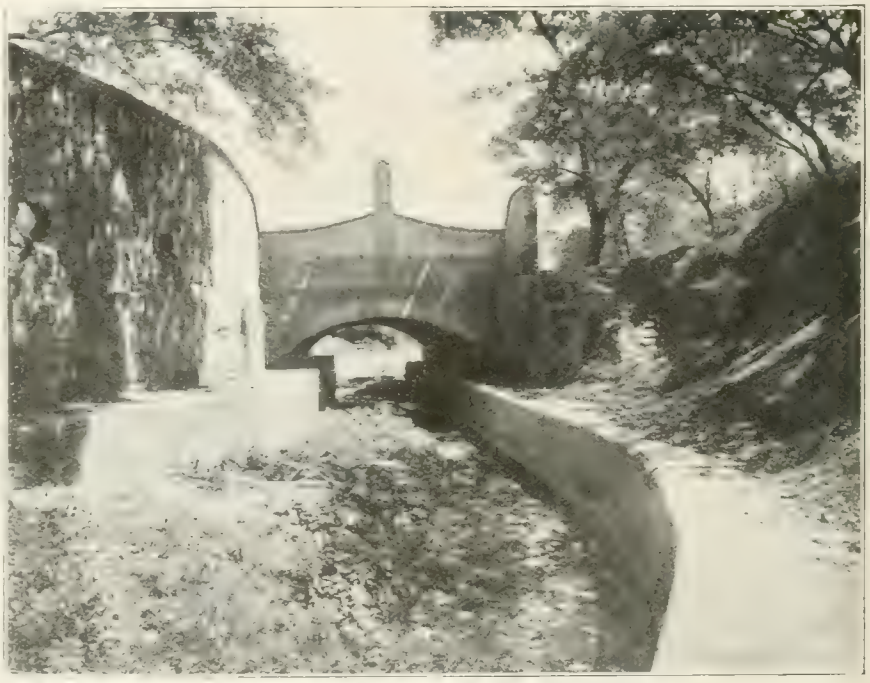
As a matter of fact, practically all of the old system will be entirely scrapped as soon as the new one is completed because all previous work was badly planned as to location, type, side, and gradient and without a proper conception of the sewerage system as a whole.

After collecting, compiling and analyzing all the meager data available and making a careful topographic and hydrographic study of the drainage area, it was decided to lay the sewers in pairs in the beds of the quebradoes and to carry these to the trunk line which paralleled the Rio Guaire, into which the sewage eventually empties. The entire system will cost, when completed, about fifteen million dollars in gold, but for the present a sewage disposal plant must be foregone on account of lack of funds. Dr. Chacin Itriago has prohibited the irrigation of vegetables with Rio Guaire water and those grown below the city may not be brought into or offered for sale in Caracas. An efficient purification plant is a part of his ultimate plans, however.

Sanitary sewage and ordinary street and roof run-off will be carried by the sewers, which are constructed of reinforced concrete. Run-off from outside the city and direct rainfall into the quebradoes themselves will be handled by the old stream bed lying between the sewers. Excess loads of storm water will be discharged by swing gates opening into this space. Of course these waters will contain a certain admixture of sewage but inasmuch as the rains at such times are intense—sometimes as high as three inches per hour—the overflow discharge will be very rapid and from a sanitary viewpoint, without danger.

The sewers on cross section present a rectangle superimposed on a trapezium having a semi-circular bottom. This permits rapid run off with minimum sewage load, the semi-circular portion carrying ordinary dry-season city discharge, the trapezium the residential and factorage sewage, and the rectangle, flood waters. There are manholes every one hundred meters and at curves and changes in gradient. Inspection, air and light openings are provided at twenty meter intervals in the smaller sewers, and traps, screens or gratings guard all flood water entrances against trash and stones. Dumps are located at points convenient for removing sand and mud. In one situation, where the trunk sewer crosses the Rio Caroata, a two-cylinder siphon 1x21 meters is inserted.

The best materials are being used throughout and good workmanship is insured by continuous, careful inspection. When completed (and the work is being rapidly pushed) Caracas will have one of the best sewage disposal systems in South America with a consequent improvement of its public health, as the health situation was chiefly an engineering problem.



Marino Bridge, showing parallel sewers. The sewers, laid in pairs in the beds of the quebradoes, are carried to the trunk line which parallels the Rio Guaire, into which the sewer eventually empties.

Teaching Health Through Pictures

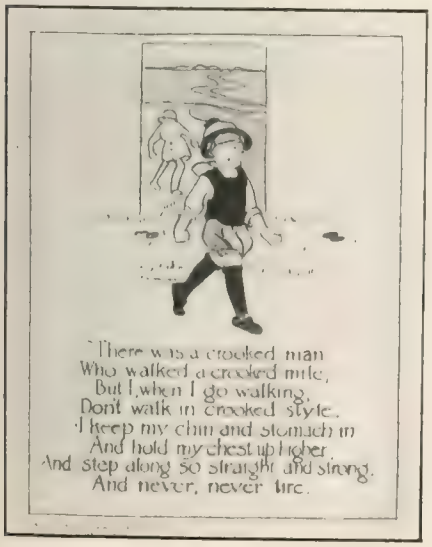
By CHARLES F. POWLISON, General Secretary, National Child Welfare Association, New York City

HEALTH cannot be forced from without; it must be fostered from within. All the health regulations in the world will avail but little in lowering a city's death rate unless its citizens are taught how to live healthfully. Fifty years ago, boards of health did little but fumigate, quarantine, and investigate complaints of "nuisances." Nowadays, an increasingly large part of their activities consists in educational work.

The same thing is true in the schools. We are beginning to realize that physiology is far less important than hygiene,—that it avails a boy nothing to recite the names of all the bones in his body, if he cannot stand correctly, and that right habits in eating are far more useful than exact knowledge of the digestive processes.

But the teacher's problem is not merely to impart information concerning hygiene. Her task is to arouse her pupils' interest, to enlist their wills,—as one public health worker had said, to awaken a "hygienic conscience" within them. Our children must be given a real love of health, a real desire for health habits, a real sense of responsibility and pride in acquiring and keeping the best of health.

NOTE:—The pictures illustrating this article are reproductions of educational panels prepared by the National Child Welfare Association, 70 Fifth Avenue, New York, and are taken from over four hundred subjects relating to the physical, mental, and moral development of babies and children. The panels are 17 x 28 inches in size, lithographed on very heavy, durable paper, hand-colored and eyeletted for hanging. They are arranged in series of five to twenty-five panels. Bulletins with prices will be sent free by the Association. Their handbook illustrates all of the panels and also contains much helpful information on Child Welfare.

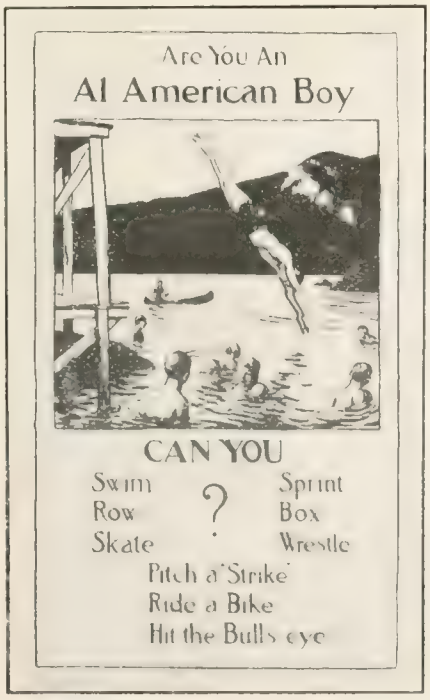

There was a crooked man
Who walked a crooked mile,
But I, when I go walking,
Don't walk in crooked style.
I keep my chin and stomach in
And hold my chest up higher
And step along so straight and strong.
And never, never tire.

The Visual Appeal

Now how shall the teacher reach and arouse the wills of her pupils? How shall she make them desire health?

The old fashioned method was that of the birch rod. But birch rods, hickory sticks and rulers are no longer considered legitimate means of arousing a thirst for knowledge. They were discarded in favor of less vigorous methods, and we of the older generation were taught almost exclusively through our ears, by dint of endless repetition, recitation, and exhortation by pupils and teachers.

It remained for a wiser generation to learn that the shortest road to the will is not through the ear, but through the eye. Instruction too often "goes in one ear and out the other," but, as someone has remarked, it has never been accused of "going in one *eye* and out the other." Thus it is that visual education is at last taking its rightful place as a means of arousing the desires and the activities of both children and adults.



How can the principle of visual education be used in imparting health habits?

For ten years past, the National Child Welfare Association has been answering this question by the issuance of a steadily increasing series of panels on such topics as prenatal care, prevention of tuberculosis, hygiene for school children, physical care of babies and children, the Modern Health Crusade, foods and health, aids for the nutrition clinic, Mother Goose health rhymes, prevention of orthopedic defects, and Babes in Healthland.

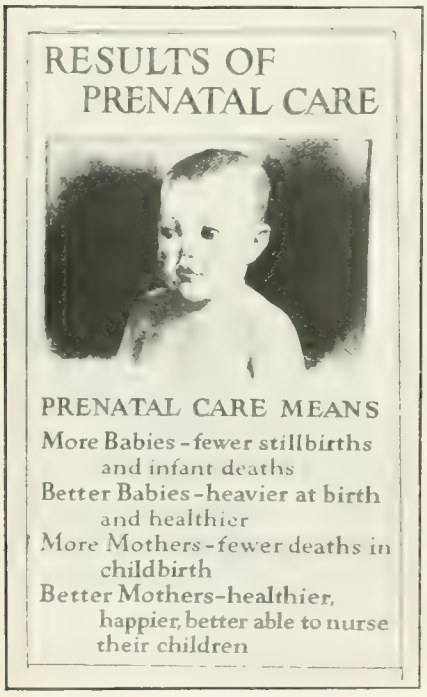
As the titles indicate, many of these series are intended for use among ignorant mothers and fathers. The success of a modern school is not complete until it has enlisted the interest and cooperation of the pupils' parents. In many schools, these panels are being used for talks and discussions in the Mothers' Club or Parent-Teacher Association. Sometimes they form the basis for an entire winter's program. Such a logically planned program must result in more interest, more intelligent understanding of the children's needs, and a heartier joining of hands between home and school.

In the baby clinic, milk depot, or infant welfare station, the panels, hung in the waiting room, are eagerly studied by the mothers, who, baby on arm, pass from one to another. Even without the simple wording, the picture carries its message and reinforces the words of doctor or nurse.

The public health nurse often takes a few panels on her rounds to drive

home her message, for these simple mothers have a touching faith in the printed word. Many nurses have lent panels to the local churches, libraries, granges, schools or community centers. Many a nurse and settlement worker will testify that she can make more impression upon a group of ignorant women in a half hour with the picture panels than in twice the time without them.

And as it is with the parents, so it is in far greater measure with the


RESULTS OF
PRENATAL CARE
PRENATAL CARE MEANS
More Babies - fewer stillbirths and infant deaths
Better Babies - heavier at birth and healthier
More Mothers - fewer deaths in childbirth
Better Mothers - healthier, happier, better able to nurse their children

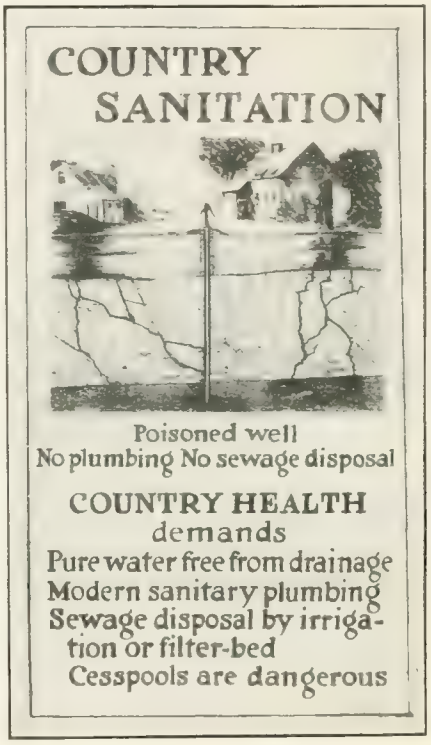
children. In school-rooms all over the country, these educational picture-panels are proving their usefulness.

Many teachers have used the panels as subjects for the pupils' compositions. Others assign certain panels to selected pupils who read up on the subject and deliver brief lectures to their classmates. Still others merely hang up the panels, a fresh one each week, and let them speak for themselves.

The success of these methods is evidenced by letters from many teachers. A teacher from Jeffersonville, Ind., says, "Already the children have learned, 'There was a crooked man' and could you have seen them yesterday afternoon 'stepping straight and strong,' when we went for a hike, you would have rejoiced."

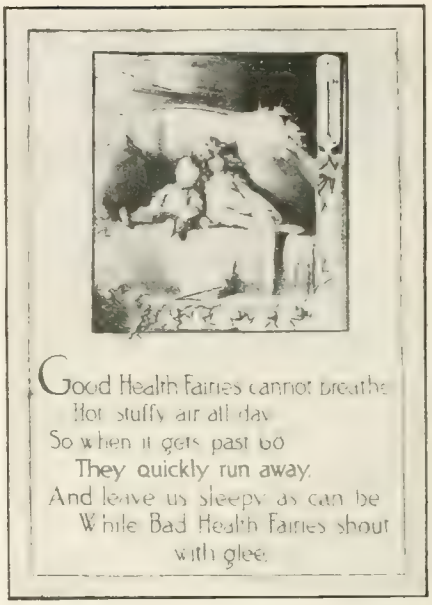
The wide applicability of the panels is shown by the fact that they are in use in twenty-four foreign countries and that Dr. Yamei Kin is translating them into Chinese for use in her native land.

At a recent exhibit at the University of Illinois, 2,000 school children, in relays, were instructed by means of these panels, and 3,500 students



studied them as a part of their college work.

At another exhibit, a rough old


Good Health Fairies cannot breathe
Hot stuffy air all day
So when it gets past 60
They quickly run away
And leave us sleepy as can be
While Bad Health Fairies shout with glee

man, after studying the panels long and with intense interest, said to the field worker in charge, "Say, lady, if they'd had them things when I was a boy, I'd been a better man."

He struck the keynote of the National Child Welfare Association's purpose,—so to educate and arouse the boys and girls of today that there may be better men and women tomorrow. Indifferent health conditions give way to an enlightened interest.

Housing of Non-Family Women

A SURVEY of the housing of the non-family women in Chicago has recently been published by the Chicago Community Trust. Two college trained girls, new-comers in the city, were sent room hunting as prospective lodgers, investigators incognito. Newspaper ads and room rent signs were the bases of action. About one hundred rooms were visited and reported in each of the three districts selected for investigation. The loop district was not included. Some of the ads included hotels with thirty to fifty rooms, with better heating systems, a daily change of towels and other more businesslike administration perhaps than private rooms.

Details of the data compiled cannot be given here. On the North Side 90 per cent of the homes visited rented more than four bed rooms; on the South Side 65 per cent; and on the West Side 92 per cent. Only a few single rooms rented for less than seven dollars per week. Thirty-six per cent of the places on the North Side rented from five to eight dollars per week, 71 per cent on the west, and 56 per cent on the South Side, where the best conditions seem to prevail. Twenty-six per cent of the baths reported for the South Side were used by more than six persons, 41 per cent on the North Side, and 52 per cent on the West Side. The sanitary condition of toilets, the ventilation, house privileges for the entertainment of guests, and the furnishings of the rooms are reported. The situation in institutional homes and residence homes was surveyed and reported. A list of room registries with the work or territory covered by each is given.

From the data collected specific conclusions and recommendations are made, among others that: Facilities in special boarding houses and residence clubs should be increased; inadequate provision is made for transients; a permanent council or conference on the housing of non-family women should be organized composed of the organizations interested in housing for women.

Chicago Community Trust, Chicago, 1921.

An Indigenous Fish Used in Combating Malaria*

In the Malarious Belt all Standing Water Must be Considered a Constant Menace

By H. H. HOWARD, M.D., International Health Board, New York City

AS RAPIDLY as possible the program for testing the top feeding minnow as an agent of mosquito control was put into effect. Many water deposits were already stocked with minnows naturally, some in sufficient numbers for control, while in others fish had to be added. Water deposits were prepared for fish control by the removal of all debris and aquatic vegetation, and the edging of their shore lines. It was necessary to maintain this condition in the water deposits throughout the season to render the minnows effective as control agents. The following table shows the water deposits controlled by fish which were introduced in the numbers indicated. Those water deposits have naturally a sufficient number of fish for control do not appear in this list:

Water deposits	Number of fish introduced
56 ponds	3,184
1 creek	460
12 branches (tributaries of creeks)	2,105
27 ditches	4,764
16 pot holes	1,100
1 seepage area	35
1 spring	50
3 dipping vats	335
5 cisterns	134
3 wells	44
125	12,221

During the last half of the season of active mosquito breeding, in more than 90 per cent of all water deposits in the controlled area mosquito production was being satisfactorily and effectively controlled by the Gambusia. For a more detailed report of the operations in 1919 see "Use of the Top Minnow (*Gambusia Affinis*) as an Agent of Mosquito Control," by H. H. Howard, Report No. 7486 I. H. B

In 1920 the same area was kept under control with methods similar to those employed in 1919, except that fish control was made our main dependence throughout the season and was extended to all classes of water deposits. During the season of 1920, in approximately 85 per cent of the water deposits where control was attempted, the top minnow was the sole agent employed, and in 10 per cent of those remaining, mosquito control was secured in part by the use of fish. The total estimated number of top minnows used for stocking purposes during the season 1920 was 7,500. At the opening of the season 1920 it was found that, among the water deposits stocked with minnows in 1919, the fish had disappeared from 37 potholes. Ditches and branches which carry only storm water drying down to pools in dry weather, had retained the fish through the winter remarkably well, but it was necessary to redistribute and replenish the fish for the season of 1920 in a number of water deposits of this class. All running streams, ponds, borrow pits, dipping vats, springs, and other water deposits of a permanent nature retained the minnows throughout the winter 1919-1920, and in but few instances was it necessary to restock or add to the number of fish in these places.

At first the top minnows for stocking purposes in these experiments were secured mainly from those waters within the controlled area where there seemed to be an excessive number of fish. Later a pond was reserved for breeding purposes, and from this source a large proportion of the fish for control measures were obtained. The rapid increase of minnows in some of the waters stocked with them for control purposes furnished part of the supply, and from deposits outside the controlled area it was possible at any time to supplement the stock of fish.

An ordinary bobbinet dip net was used for the capture of the top minnows. They were found to bear transportation for reasonable distances very well in water of air temperature. A five or ten gallon milk can has proved the most suitable vessel for such purpose. The female seem to bear transportation better than the male, and the mature fish better than the young. It was found that the *Gambusia* is easily bred in large numbers. Experience would suggest that, for breeding purposes, a large pond should be selected; the waters of the pond should be fairly clear and free from contamination; there should be extensive "shallows" at the margins of the pond to which the young fish may retreat and escape from the cannibalism of the adults. The spillway of the pond should have a fish guard of No. 14 or No. 16 gauge wire to prevent the escape of the young fish, which seem to have a very strong instinct to follow flowing water at every opportunity.

The recognized enemies of the *Gambusia* in the section of Mississippi where these experiments were conducted were the predacious fish—mainly the bass—and the black water snake. Neither of these, however,

No. 9. Mill ponds showing heavy aquatic growth, [illegible]. This is a very pernicious water growth, almost impossible to eradicate. It prevents the Gambusia from gaining access to the mosquito larvae. Its presence in the waters of malarious sections should be prohibited.

*Part I of this article was presented in the February issue of The Nation's Health

were ever a serious menace to the *Gambusia*, which, if other conditions were at all favorable, would thrive and multiply rapidly in the presence of either or both of these enemies.

The Numbers Necessary

The number of top minnows necessary for the effective control of mosquito production will vary according to the nature of the water deposits, its shore line conditions, the available food supply, and the presence or absence of active predacious enemies to the fish. Probably the number of mosquitoes visiting the water for ovipositing may also be a determining factor. For practical purposes, and to obviate the necessity of attempting close calculations on uncertain grounds, the following procedure was adopted in the experiments that are being outlined:

Mosquito inspections were made every ten days. When the inspector discovered mosquito larvae in a water deposit under fish control, it proved safe to attribute their presence to one or both of two things—first, the insufficient number of fish, and second, the presence of too much vegetation and débris. The remedy consisted of increasing the number of fish or clearing away vegetation or débris, or both.

As a routine practice, 25 or 50 fish were used to stock a water deposit. A larger number than this was used where it was desired to bring mosquito production under control quickly. The proportion of males to females in the section referred to was 1 to 15 or 20. For this reason, investigations were made to insure the presence of two or more males where only 50 fish or less were used in stocking isolated water deposits. The mature male Gambusia may be distinguished from the female by its smaller size and its long and flowing anal fin.

The following facts concerning the life history of the *Gambusia Affinis* are taken from Document No. 857, issued by the United States Bureau of Fisheries:

The *Gambusia Affinis* usually inhabits shallow, stagnant waters, whether fresh or brackish, and it thrives under conditions of relatively high temperature if the proper amount of food is available. It is a very hardy fish, adapting itself readily to many different natural conditions as well as to life in the aquarium. Its food consists largely of larvae of insects, but it feeds also upon a variety of other animal and plant substances. It sometimes eats its own kind, even its own offspring, especially in the restricted environment of an aquarium. One medium size female may destroy as many as 165 large mosquito larvae in a day. In the region of Beaufort, the fish produces its first brood of young for the season during the month of May and continues to breed . . . until as late as October. It may produce during a single season six or more broods, averaging forty young to the brood. . . . The young are delivered during the day, one, two, or three at a time. . . . Some of the individuals of the early broods of the season become sexually mature and breed small broods of young late in the season in which they themselves are born.

The observations made in the experiments already described coincide with the statements made by the author, Mr. Hildebrand, in the quotation given above.

In the consideration of the merits of the several measures most often employed for mosquito control, unquestionably drainage occupies first place as regards efficiency and permanency of results. Moreover, it is likely that figures could be adduced to show that, in the majority of instances, it would be the most economical measure ultimately. It is not often possible, at the present stage of mosquito control in this country, however, to secure funds to meet the heavy initial cost of a comprehensive drainage program. It is the impossibility of attaining the ideal which has compelled the adoption in some instances of measures of control, the results of which are too often continued scarcely beyond the period of their application. Of such measures of control, oiling—the results of which are probably the most transient of all—has been considered the most effective under certain conditions, and has consequently been the most widely used. While it is not proposed to decry here the use of oil or to depreciate its value in meeting emergencies, yet it must be said that, with the price of oil high, very high labor cost for its distribution, and much preparation and maintenance of field conditions necessary for its successful use, it is only wise to give due consideration to promising less expensive and possibly more lasting measures of control. This is especially true when operations in large areas are contemplated.

Not only is oiling as a measure of mosquito control, expensive and very transient in its results, but its effectiveness is subject to extremely definite limitations which are too often lost sight of or disregarded.

In Reprint No. 260, *Public Health Reports*, Mr. J. A. Le Prince sets forth some of the limitations of oil as a control means, as follows:

It is not advisable to oil water when the film will not remain effective, as just before rain storms. During the rainy periods the value of oil is decreased. The ability of the larvae of mosquitoes to live under an oil film for an hour should be considered. Oil films will not penetrate a barrier of grass or move around similar obstructions. When such obstructions to the oil film occur on the water surface and are not removed, sufficient oil must be used to cover both the obstruction and the spaces between them. Wind will break up the oil film and transport all oil to one shore of the body of water.

In a large rural district with extensive mosquito breeding areas of every variety and condition, often these limitations alone may operate to the undoing of control operations by oiling. Consequently, the system of inspection and supervision necessary to prevent such a contingency

No. 10. The same mill ponds cleared of vegetation and their banks "edged" in preparation for fish control.

No. 11. "Bogue Chitto," the largest of the three streams in the District, at the normal water level. These streams are in their original channels, which are tortuous and winding, often containing brush, logs, and other debris which greatly impede their flow. They are subject to frequent "overflows" during heavy rains. During the autumn and early winter, when precipitation is lightest, their water level falls and they are without current. They usually contain large numbers of the Gambusia which control mosquito breeding except in places rendered inaccessible to them by debris.

must be constant and thorough, and will be correspondingly costly.

Some of the following apparent advantages of fish control as compared with oiling may be of interest:

Where the top minnow (*Gambusia Affinis*) is indigenous, or where it may be introduced and bred in large numbers, its use as an agent for mosquito control is attended with no further cost than that incurred for its capture and transportation.

The petroleum mixture, which is commonly used for mosquito control, costs more than twenty cents per gallon, and the cost of its application is correspondingly high.

One stocking of minnows will suffice for an indefinite period in water deposits of a permanent nature, and as a rule for a much longer period than a single oiling in every instance.

Oil must be applied every seven to ten days in dry weather, and oftener in windy and rainy weather.

While methods for the preparation of bodies of water for oil control and fish control are much the same, it was very evident during our control experiments in the seasons of 1919-1920 that top minnows will maintain effective mosquito control in the presence of debris and vegetation, which would render oil ineffective. Thus both the cost of preparation for oiling and the cost of maintenance may be higher than in fish control.

The effectiveness of the oil film is quickly destroyed by winds, rain, waves—natural phenomena of frequent occurrence. These have practically no effect upon the minnow as a control agent.

A general stocking of the waters of any mosquito infested section with the *Gambusia* results in not only immediate, but material and enduring reduction in mosquito production.

It seems evident that this means of mosquito control, even if other measures fail or are discontinued, will continue indefinitely to operate against mosquito breeding unless disease, natural enemies, or some unforeseen cause should lead to the extermination of the top minnow.

As has been remarked before, oil as a control measure is transient in results, and to be effective must be regularly and continuously practised. If, in any instance, it is discontinued, probably no lasting benefits as regards mosquito control will come from its previous use.

The intelligent and effective use of top minnows as an agent of mosquito control requires practically no technical training or expert knowledge on the part of those who would use them for this purpose.

Oiling, to be done effectively, requires considerable technical knowledge and training.

A careful examination and study of conditions in the controlled area during the last year of our experiment (1920), and an analysis of our cost data, enables us to estimate that the use of the *Gambusia* as an agent of mosquito control has made possible a saving of 50 per cent to 60 per cent in the cost of control, with the additional advantage that we are leaving behind us, as our work closes, an agent of control which will continue to function and hold mosquito production more or less in check indefinitely. We may further state that we are by no means certain that the control of mosquito production would have been possible without the use of the top minnow, because of the presence in the area of more than 80 stock ponds which were essential for the convenience of the people and could not be drained or filled, and which would have been rendered unfit for stock had they been oiled. Experiments with oiling in several of the ponds which were not in use at the time rather tended to show that, had the use of oil been permissible in the stock ponds, it would not have been effective in controlling mosquito production, mainly because of the drifting of the oil film by the wind.

While we have carefully analyzed the data collected in 1918 and in the two subsequent years as to the number of water deposits in which mosquito production was being partly or wholly controlled by the *Gambusia* under conditions of natural distribution, it being indigenous to the section, we are not prepared to even estimate the measure of mosquito control resulting from the activities of the *Gambusia* under these conditions. Probably no proper valuation can be made of the *Gambusia* as a controlling factor in mosquito production where the fish is indigenous, unless it were possible to observe mosquito production for a period of years with the *Gambusia* present in natural distribution, and then to eliminate the fish and note the changes which might occur in mosquito production through a period of several years.

We were able, however, to ascertain, during the observation period of 1918 and before any artificial measures for mosquito control were put into effect, that in approximately 35 per cent of the water deposits in the

district, mosquito production was being nearly or wholly controlled by the *Gambusia* under conditions of natural distribution. In sections where artificial ponds, which are usually inaccessible to the *Gambusia*, unless the fish is purposely placed in them, are less numerous than in the district referred to, the proportion of water deposits under natural control by the indigenous *Gambusia* must be much higher.

If the *Gambusia* is a natural enemy of the mosquito and possesses a predilection for mosquito larvae as food—and observations seem to support this theory—then it is reasonable to suppose that the fish will seek access to and by choice inhabit that class of water deposits most favored by the female mosquito for ovipositing. If this be true, it then follows that the control of mosquito production by the *Gambusia* in sections where it is indigenous, and where its distribution has been determined by natural selection, is in far greater proportion than would be indicated by data showing only the proportionate number of water deposits in which the *Gambusia* is found.

In 1919 it was the privilege of the writer to survey an incorporated town and its surrounding territory in Mississippi and located near the district where our experiments were in progress. This survey showed scores of potential mosquito breeding areas under almost complete control by the *Gambusia* which have made their way into these areas and into the town ditches and street drains in great numbers. The stocking of these areas resulted from the overflow of a nearby stream which contained large numbers of *Gambusia*. One of these potential mosquito breeding places, consisting of a small but rather deep lake, was at the outskirts of the town. The locality was being used as a dumping area for the town refuse, which had practically filled up a part of the lake.

Aside from some turbidity, due to the nature of the material being dumped into them, the waters of the lake were fairly clear but the shores were heavily overgrown with grass and weeds. Although these waters and shores seemed an ideal breeding place for mosquitoes, no larvae were ever found; thousands of top minnows were observed patrolling the shore line, investigating every nook and cranny in search of food. No one can observe the tireless activity and persistence of these little fish in their search for food, and the ferocity with which they attack and destroy mosquito larvae, without being greatly impressed with their possibilities as an agent for mosquito control. Unquestionably, the town referred to, as well as many other communities in sections where the *Gambusia* is indigenous, owes much to this little fish for a very material reduction in its rate per cent of malaria through the destruction of mosquito larvae.

No. 1.—In the autumn when the creeks dry down to a series of disconnected pools the Gambusia are concentrated in these pools and often maintain a fair degree of mosquito control unaided. However, it is necessary to redistribute the fish in proper numbers often, and to remove the masses of leaves which collect in the pools when the trees cast their leaves.

Briefly, the results of the two years control of mosquito production in the area referred to, were:

(1) The complete and immediate elimination of the mosquito nuisance.

(2) The reduction of clinical malaria from a rate per cent of 17.83 in 1918 to a rate per cent of 5.03 in 1920. Of the rate per cent of malaria for 1920 (5.03) a large proportion of the cases were relapses from the infections of previous years which could have been prevented only by the administration of quinine. These people gave definite histories of malarial attacks each season for two or more years. Probably not more than two-fifths of the entire number of cases occurring in the area during 1920 were due to infections received after malarial control measures were in operation.

It may be of interest to know that the rate per cent for clinical malaria was 21.6 in the non-controlled territory for the season of 1920.

The per capita cost of the control operations for the two years was, respectively: 1919, $2.60; 1920, $3.08. The increase in the per capita cost in 1920 over that of the per capita cost in 1919 was due entirely to the great increase in the cost of labor.

Since the attention of the public health authorities and sanitary engineers has been directed to the possibilities of the *Gambusia* as an agent of mosquito control, many are employing them in their anti-malarial campaigns with most satisfactory results. It was gratifying to note at the last meeting of the National Malaria Committee and the conference of sanitary engineers at Louisville, Ky., that, without exception, the reports of those who had used the *Gambusia* in mosquito control during the season of 1920 were most favorable. In some of these reports it was stated that a saving of 50 per cent of the estimated cost of control was made possible by substituting fish control for the more expensive methods of the past.

The *Gambusia Affinis* is not found in many foreign countries. It is reported to be found in Trinidad, British West Indies, and in British Guiana. There is, however, no record of it having been imported to these countries, and the writer was unable to verify by personal investigations made this year the statement that it

is present. Recently it was the privilege of the writer to observe the results of mosquito control experiments where the small Cyprinodont fish, known in Barbados as the "Millions," was used. They seem to function well, though because of their small size, the individual fish evidently cannot devour as great a number of mosquito larvae as the larger *Gambusia*. Also, recently the writer had the opportunity to observe some experiments in southern Porto Rico with the top feeding fish of that section, the *Poecilia Vivipara*, where it was being employed in experiments at mosquito control.

Application and Conclusion

As has been remarked, the intelligent and effective use of the *Gambusia* as an agent of mosquito control requires practically no expert knowledge or training. Any intelligent person interested in controlling mosquito production can make profitable use of the *Gambusia*. As an illustration, we may take a rural home in the hill sections of one of the southern states. Usually the home is located in some commanding elevated spot with the woodlands and cultivated fields situated around it. The dwelling site is usually fairly well drained. More or less malaria occurs in the household every season. Severe cases may have occurred and possibly an infant or young child may have died with the disease. Each season there is sickness in the home—there are doctor's bills and drug bills incurred, and time is lost through sickness from the important work of the farm because of malaria, which is directly due to the breeding of *Anopheles* mosquitoes usually within one-half mile, often within one-quarter mile or less of the home. The first step for the head of the household to take is to survey his premises for one-half mile in each direction from his home, and to note all water deposits within this radius. He should realize, if he lives in the malarious belt, that, for the safety of himself and family as regards malaria, he must consider all standing or stagnant water as a constant menace.

No. 14. Results of "freshet." Cornstalks and debris from the fields deposited on the fence and in the road by the water. The overflow of streams results in the inundation of fields from which the alluvial soil is often washed, together with much vegetable debris that would be of value to the lands.

All water deposits within the one-half mile radius which are not absolutely essential for the needs of the farm should be filled or drained, ditches should be provided and kept clear for carrying off storm water promptly; watch should be kept for water left standing in tubs, rain-barrels and artificial containers, and this should not be permitted. A tablespoonful of water may breed mosquitoes if it stands long enough. The water deposits which are essential for the convenience of the home, or which are too extensive to be drained or filled (ponds, springs, creeks, etc.), should be thoroughly cleared of debris and vegetation and stocked with top minnows. At least once each month, and better twice a month, during mosquito breeding season (April to November), an inspection should be made of each water deposit to make sure that the waters are free from débris and that the shore lines are cleared of vegetation. This condition is necessary if the top minnows are to function properly.

If mosquito breeding areas located on his neighbor's lands are nearby and are a menace to the health of the householder and his family, an opportunity is here afforded him to interest his neighbor in a co-operative effort at mosquito control which may spread and develop into community action.

Certainly this program presents no serious difficulties to the fairly intelligent, progressive householder in our rural sections, neither does it require the expenditure of any considerable sum of money, and it promises very profitable results in improved health and efficiency for the inmates of the home where it is put into effect.

No article on malaria should be concluded without mentioning the fact that *quinin is the only known remedy for malarial infections*, and, if taken in proper dosage for a sufficient length of time, it acts as a specific. The state boards of health of many of the southern states are prepared to give full information regarding the use of quinin for malaria, if such information is not available from a physician.

No. 13. A "freshet" on Bogue Chitto Creek. The heavy rains of the winter and early spring often cause "freshets" or overflows in the creeks. They escape from their banks and flood the surrounding lowlands. When the "freshets" occur, as they sometimes do, after the crops are planted and growing, great damage is done to the growing crops by the water

Mexico Celebrates First Baby Week

Fifty-five Thousand Mexicans Appealed to Through Elaborate Child Welfare Exhibits

By HELEN BOWYER, Executive Secretary de la Semana del Niño, Department of Health, Mexico City, Mexico

THE Mexican Department of Public Health is one of the major activities of the Federal Government. It is organized under its own *Jefe*, or Chief, who is responsible only to the President of the Republic. When, therefore, it decided to hold a *Semana del Niño*, or Baby Week, as its contribution to the Centennial of the Nation's Independence, it found itself with both the authority and the resources to do it on an effective scale.

There had never been a Baby Week in Mexico or a big child welfare demonstration of any sort. The staff was, therefore, unhampered by precedents of any kind and immediately opened up relations with the United States, England, Canada, and New Zealand appealing to both their Governments and their private organizations for all the cooperation they could bring to bear. Never was appeal more warmly answered and perhaps no Baby Welfare Exhibit ever held represented the personal good wishes of so many social workers in so many different parts of the world. Even from troubled Russia came inspiration in the shape of those wonderful posters which the English Friends had prepared for the Moscow Maternity Exposition.

There are in Mexico no such large halls as are available in American cities and so it was necessary to stage the Exhibit in the ground floor rooms and the *patios*, or inner courts, of the *Departamento* Building. As the week of its celebration, September 11-20, came towards the end of the rainy season when heavy showers might be expected daily, the *patios* were roofed over with a roofing of gray and white striped canvas which harmonized with the soft grays and tans of the booths. The rough stone floors and square stone pillars among which these booths were set, the great palms and flowers that walled the aisles between them, and the long vista through the *patios* from the *Paseo de la Reforma* to the *Calle de Madrid*, gave an effect both beautiful and picturesque.

The posters with which the booths were hung were almost all painted for the occasion or made over by Mexican artists from material sent by other countries. Most of them were in soft, rich colors which drew the attention of the beauty loving Mexicans as black and white would not have done.

Many Baby Welfare Booths

Each booth represented a major division in the field of Baby Welfare. Among those that attracted the most interest were the exhibits on eugenics, on prenatal care, those on the care and feeding of the baby, infant mortality, baby diseases, poverty and defective housing in relation to the child, public nurses and welfare stations, the country child and the defects and limitations of his environment, and the things that other countries are doing for their babies. There was also a special exhibit for fathers and one for mothers. The latter, which was prepared in part by Elena Torres of the *Consejo Feminista*, or Feminist Organization, was unique in that it emphasized those responsibilities of women which theoretically lie outside the home but which in reality condition it. Wages, unemployment, housing, public sanitation, cost of living,—all these and other problems were called to the attention of the women of Mexico, who, like the women of other lands, will have to take a hand in solving them if they are to be solved at all.

Other interesting exhibits included one prepared by Señorita Emmy Ibanez of the *Sociedad Protectora*, a new orphanage for boys, and one by Señor Roberto Modellin on the nutrition work of the *Direccion General de Educacion* which daily provides breakfast to hundreds of school children whom poverty would otherwise compel to go without. A charming exhibit of baby clothes designed by Miss Mary Pearson on the simplest and most inexpensive lines awakened so much interest that three afternoons Miss Pearson and a group of assistants were kept strenuously busy cutting and giving out patterns of the garments.

The exhibits were supplemented by such practical demonstrations as are usually found in a standard child welfare exposition in the United States. There were demonstrations in the modifying and preparation of the baby's milk for the day, and in the feeding, bathing, and clothing of the baby. In the booth on the care of the eyes a specialist gave appropriate object lessons, while a group of students in charge of the booth on the care of the teeth directed in tooth brush drills a group of children picturesquely costumed for their parts. As interesting a demonstration as any were the milk tests conducted daily by a group of chemists belonging to the Department,—tests for bacteria, for acid, for proteid contents, etc. The tests were accompanied by popular talks on the essentials of a proper milk supply for a city like Mexico.

The Department is very much alive to the importance of birth registration and made a drive for it one of the features of the *Semana del Niño*. A booth was hung with posters setting forth the advantages of the *Registro Civil* and all the possible penalties of its neglect. As a special inducement, all children registered during the week were promised a certificate signed by the President of the Republic. Near the registration booth a room was fitted up for vaccination and thither babies who had had their names inscribed in the *Registro Civil* were shepherded for the further duty of immunizing them against smallpox. It had been intended to run these two activities only in the mornings, but the demand was so overwhelming that both had to be kept open all day.

The *Paseo de la Reforma* is a broad and beautiful boulevard which, as it passes the Department, is divided into three roads by wide strips of sward. The road in front of the Department wall furnished the only available site for the demonstration playground which the staff of the *Semana del Niño* was so anxious to operate, and for the "Little Theater" which was to house the *Conferencias*, the *Comedias*, the Kindergarten *fiesta* and other program features. Two large tents were therefore pitched out on the roadway, the one fitted up with a stage, the other with a sandbox, teeter, swing, and two sliding boards.

Playgrounds, in the American sense of the word, are almost unknown south of the Rio Grande, and young Mexico went wild over this one, sprung up so mysteriously over night. The children literally stood by the hundreds waiting their turn at swing and sliding board, going down the latter in an uninterrupted stream. There was never a day when there could have been less than three thousand youngsters in attendance, and several days there must have been more.

Kindergarten Fiestas Popular

The kindergarten *fiestas* were among the most charming features of the week. Under the untiring leadership of their *directora*, the Kindergarteners of the *Direccion General* gave four programs in which, by means of games and songs, their tiny charges dramatized such fundamentals of health and right living as good food, the liberal use of milk, efficient housekeeping, personal cleanliness, sunlight, and fresh air. The *Comedias* were fairy Health Plays, two of them written especially for the *Semana del Niño*, and two of them translated from the plays of the National Tuberculosis Association and the Rockford (Ill.) Public Schools. They were given by the pupils of leading schools in the city and were received with such enthusiasm that the Department is issuing a book of such plays to continue the propaganda.

The *Conferencias* were short lectures given by eminent physicians of the city under the leadership of Dr. Alfonso Pruneda, General Secretary of the Department. They were given twice a day, on such subjects as heredity, prenatal care, the feeding and care of the baby, and most of the other aspects of child care that would be covered in a standard American exhibit. In addition to this, a group of students from the National School of Dentistry gave brief popular talks on the newer aspects of dental science, such as the part which the proper diet of the mother during the prenatal period and the breast feeding of the child during the first nine months of life bear in the formation of a strong set of teeth.

The program of the *Semana del Niño*, however, was not confined to the *local* of the *Departamento de Salubridad*. Each day of the week had some special feature which was celebrated in some other portion of the city. Sunday was the *dia de la bandera*, whereon pennants of royal blue, bright with the insignia of the Department, were hung from the windows of the homes of all the babies who had chosen the last few days for their *debut* on earth. On Monday little *fiestas* were given in all of the primary schools. Short talks on personal hygiene and on the care of the teeth were sandwiched in between the more festive features and every child was presented with a tooth brush and a copy of the Metropolitan Mother Goose done into Spanish verse by the Mexican poet, Solon de Mel.

On Tuesday came the *Procession Infantil* in which the vanguard of Mexico's babies joined their insurgent brethren in the United States in voicing their rights to intelligent parents, decent homes, clean milk, pure water, and all the other "minimum essentials" which the modern infant has been taught to demand. Over a hundred automobiles, hung with posters and banners, bore the young agitators through the principal streets of the city, their oncoming well announced by military bands. The way, indeed, had been prepared for them by sympathizers in the War Department who from their airplanes had bombarded the city with the *manifestos* of the youthful insurgents prepared with the connivance of the *Departamento*.

On Thursday and Friday the good will of the *Semana del Niño* was extended to the mothers and babies in the maternity wards of the hospitals and in the children's institutions. A program of music and little talks was followed by refreshments and the children were presented with toys, tooth brushes, and the Mother Goose Rhymes. Each mother of a new born child, moreover, was given a complete layette provided by a group of women who are accustomed to so remember their poor neighbors on occasions such as this.

Fathers' Day Celebrated

Saturday was the *dia de los padres*, dedicated, as its name indicates, to propaganda among the men of the city. *Conferencias* were delivered in the leading clubs and industrial establishments and the very popular "message to fathers," first used at the Pittsburgh Baby Week, was distributed.

The *Departamento*, indeed, made the *Semana del Niño* the occasion for the distribution of a large amount of literature on the subject of child welfare. Its translation of the Children's Bureau publication, "Prenatal Care," was exhausted before the week was over. The Metropolitan Life Insurance pamphlet, "The Child," ran it a very close second in instant popularity. A booklet on the "Care of the Eyes" by Dr. Joquin Izquierdo, a leaflet on the "Care of the Teeth" by Dr. Cordova, Director of the National Dental School, a "Message to Mothers" by Elena Torres of the *Consejo Feminista*, and a "Mother's Calendar," by the Executive Secretary, were Mexico's own contributions to her Baby Week.

There could be no question of the success of the Exposition. In spite of other and more spectacular attractions of the Grand Centennial, the Department found itself almost swamped by the crowds that poured in to the *Semana del Niño*. On the last day of the Exhibit the attendance exceeded twelve thousand.

The Department hopes that its Baby Week will work out in some of those permanent benefits to childhood that have followed similar expositions in the United States and England. It is already organizing a Division of Child Hygiene and hopes, in connection with the *Direccion General* and Government of the Federal District, to inaugurate some other child welfare activities.

Movies Aid in Eye Saving

"Saving the Eyes of Youth" is the title of a new moving picture film produced for the National Committee for the Prevention of Blindness.

Although the terrible disease that has deprived ten thousand babies in our own United States of their sight may come to any baby, black or white, rich or poor, its results are most keenly felt where the struggle for life is greatest, where the sun never shines, where overcrowding robs the very air of its health-giving qualities, where ignorance and misery abound. The picture portrays a baby born in such surroundings; it shows the lowly tenement, the mother and her new-born child, the discovery of something wrong with the baby's eyes, the gathering of the neighbors with their well-meant but worse than useless advice, the little sister who has been an attentive listener to health talks at school, the arrival of the district nurse, the hurried trip to the hospital, the sorrowing mother waiting in the hospital corridors for the word that shall mean all to her loved child, and the kindly doctors and nurses who return the child with eyes that see to his rejoicing mother.

If the experience of this mother and her child as told by the film shall save the sight of even a few of these who might otherwise spend their lives in darkness, its work will be well done.

Value of Pedographic Records

PALMISTRY,—the empirical art of interpreting by the lines of the hand the personality, trend, and particular dangers of failure in a given subject—claims many devotees. From prehistoric times until the present day sufficient numbers of people have lent faith to readings of the lines of the hand to support armies of chiromantists and to develop in palmistry a very definite system of divination. The fact that the strength and direction of connecting fibers are purely mechanical anatomical devices and that the development of mounds which are taken to indicate logic, energy, materialism, or prudence depends upon the uses to which the hand has been put and may be increased at will by exercise does not lessen the popular interest in their predictive meaning.

Attention to the lines of the hand could with great profit be transformed into universal interest in the lines and contour of the feet, for there the lines do tell a true story of habitual postures, of poise, of reserve energies, or of neglect, of vanity, abuse, and fatigue. How many people at an evening party would be cheerful or willing candidates for character reading from the soles of their feet? How many people would be able to regard with equanimity a pedographic record from youth on through to maturity? What percentage of perfect feet would any typical community disclose?

Serial pedographic records are often advisable. They may be considered necessary in the handling of abnormal foot conditions, as a check on progress. Mere inspection may enable a satisfactory diagnosis of weak foot, but it affords no precise means of measuring whether progress toward correction is satisfactory.

In the pedographic records of Dr. Jacob Grossman five prominent signs are taken into consideration of abnormal foot conditions of children: (1) the pedograph picture; (2) the contour line of the foot; (3) the height of the scaphoid bone; (4) the muscular development of the soles of the feet, especially those under the arch of the foot; (5) the presence or absence of the juvenile fat pad.

In taking the imprint the individual is seated, the leg extended, and the bare foot painted with an iron solution. The foot is then hastily placed on blotting paper and the individual is told to place all the weight on that foot. At this point the contour line is drawn by using a pencil or pen held at right angles to the plane surface. This contour line demonstrates the amount of inversion of the ankle, or eversion of the heels and heel cords. A solution of tannic acid applied to the foot imprint turns it a jet black, giving a record which can be preserved indefinitely.

In an effort to standardize the findings in children Dr. Grossman made an intensive study of one hundred children, selected because they have no symptoms referable to foot disturbances, and arrived at averages from which degrees of abnormality can be reckoned. The analysis of the conditions found in this one hundred children disclosed the fact that more than one-half of what were assumed to be normal feet were abnormal. In these cases particularly the value of pedographs of all children was emphasized so that pathological foot conditions can be detected early and prophylactic measures instituted where necessary.

Movie Health Car for Negroes

TUBERCULOSIS prevention and sanitation are literally being brought home to the rural colored population of North Carolina by means of the Motion Picture Health Car of the North Carolina Tuberculosis Association. Dr. E. T. Ransom exhibits the pictures, and lectures explaining them.

The Health Car was purchased from the sale of tuberculosis Christmas seals among the colored people of the state. It is in the field constantly, its itinerary covering the whole state, one week being spent in each county where from six to ten shows are given.

The visual education part of Dr. Ransom's program includes a one-reel film entitled "Mrs. Brown versus the High Cost of Living." This explains the happiness and comfort which come from a clean kitchen and attractive service in the home, teaches the housewife how to economize, and the proper food for children. "Celes and the Ambulance Corps," a film from the Community Service Bureau, and "Jinks," a comedy on tuberculosis, are other instructive films of entertaining vein. Six or seven reels dealing largely with health and sanitation, all told in story form, are shown at each entertainment. These include two films on tuberculosis, one on public health nursing, one on oral hygiene, and various ones on phases of agriculture which are lent by the United States Department of Agriculture.

In connection with the motion pictures, Dr. Ransom lectures to his people on home and community sanitation and the prevention of disease, especially that of tuberculosis. Since many cases of tuberculosis are found in the communities he visits, this disease is discussed at some length.

The Health Car is popular in the communities which it visits and the

North Carolina's motion picture Health car which under the direction of Dr. E. T. Ransom is carrying to the rural colored districts of the state the message of tuberculosis prevention and cure.

afternoon and evening shows are crowded with old and young, curious to see the pictures and eager to better their condition. During a six months' period Dr. Ransom gave 148 exhibitions in twenty-five counties, witnessed by 34,148 persons. At each performance he gave a health lecture besides visiting 831 persons in their homes. The car during that period traveled 3,887 miles.

"The colored people at large feel very grateful to the North Carolina Tuberculosis Association for what it is doing to promote health in the rural sections of the state," says Dr. Ransom. The close of each performance brings expressions of gratitude from the audience and regret that, on account of ignorance of such facts, lives have been lost. Everywhere the exhibit promotes permanent health work.

Cooperative Attack on Disease

THE science of chemistry has undergone a complete revolution in the last twenty years and the newer developments call for cooperative effort on the part of scientists of the highest type—chemists, physicists, biologists, pathologists, bacteriologists, and pharmacologists—in intensive chemical research on the problems of health and disease. A committee appointed by the American Chemical Society, as the result of three years of intensive study, has just issued a report under the title: "The Future Independence of Progress of American Medicine in the Age of Chemistry," which "it is the hope of the Committee will be carefully read and discussed by physicians and surgeons, by mothers and fathers, by educators, by hospital directors and trustees, and all others whose hearts are interested in the welfare of future generations of American children."

The problem of fighting disease is fundamentally a chemical problem, says the report, and one which demands the cooperative effort of the chemist, the physicist and those experts in the fields of biology who are most immediately concerned with the scientific study of disease, namely, the pathologist, who studies the changes in the organisms produced by disease; the bacteriologist, student of our chief enemies, the micro-organisms or disease germs, and the pharmacologist, who investigates the effects of drugs of all kinds on the organism.

The biologist—pathologist, bacteriologist, or pharmacologist—would be wholly at a loss in a thoroughgoing effort to chart the seas of disease and health without the aid of the chemist and physicist to study minutely and exhaustively those chemical and physical questions which form the very breath of life.

We have in this country a number of excellent research institutes devoted to medical investigations, with staffs of the highest caliber. It must be said, however, without fear of contradiction, that there is not a single organization whose purpose is a determined co-operative attack on the problems of disease and health, where intense chemical and physical research goes hand in hand with the medical and biological study of disease.

The importance of chemistry and physics has been recognized, but the direction of research is still essentially in the hands of medical men. No one of the scientific groups alone should be entrusted with the leadership. All are needed for coping successfully with the complex and formidable problems.

Chemistry and Medicine

Each human body is now recognized to be a chemical factory in which the most complicated chemical and physical changes are continually taking place, hence there has been a return to the earlier views as to the relation of chemistry to medicine.

Antitoxins, the most powerful weapons in combating invading disease germs, are chemical substances of specific curative power, but of unknown composition and never isolated as yet as pure principles. Co-operation of the medical investigator with the chemist (Dr. John Howland of Johns Hopkins and his collaborators) has led to the recognition of the fact that in rickets, the scourge of many thousands of children, there is a deficiency of such common chemical components as lime and phosphate in the blood—"a discovery that by the same co-operation must ultimately lead to successful preventive methods. But how long must the thousands of little victims wait for relief?

"If such work is to be successfully prosecuted in our midst," says the report, "it must be through the practical idealism of America, which, can here find abundant outlet in proving such conditions as will direct the future energies of chemistry in America to this greatest blessing to mankind, a blessing which will not be confined to its own borders, but will stretch out its helping hands to all suffering humanity."

The investigators find that constructive chemistry can and must render to medicine in the prevention and cure of disease services which must be used along these three lines of attack:

(1) The preparation of the specific medicament for the cure or alleviation of the specific disease.

(2) The isolation, study, and, if need be, the artificial preparation of pure organic principles of fundamental importance to our life, such as principles of secretion of our body organs, of which a deficiency or excess would cause disease (goitre, acromegaly, dwarfism, gigantism, and probably diabetes, gout, etc.).

(3) The complete ultimate analysis of the constituents of our body cells, of the components of the blood, of tissues, together with the complete ultimate analysis of the components of our foods—so that we may have complete knowledge of the body in health and of what it needs to preserve its health.

Chemistry may help cure pneumonia, for "there is every reason to believe," says the report, "that a modification of quinin can ultimately be prepared that will be a specific cure of pneumonia.

Three scourges lack specifics, the report says. "There is a tremendous, practically undeveloped, field for great work here," says the report; "specifics are now needed for tuberculosis and pneumonia, and perhaps even for cancer, to which a large proportion of mankind falls a victim."

Formerly we got most of our synthetic medicines from Germany. The facilities for chemical research in that country are contrasted with those in this country, much to our detriment. The research resources of England, France and Japan are also recounted.

The Chemical Foundation, of 81 Fulton Street, New York City, of which Francis P. Gowan is president, has undertaken to distribute upward of one million copies of the report.

This Committee worked under the chairmanship of Dr. Charles H. Herty, president of the Synthetic Organic Chemical Manufacturers' Association of the United States and past president of the American Chemical Society. Its membership includes Dr. John J. Abel, Professor of Pharmacology, Johns Hopkins Medical School, Baltimore; Dr. Carl L. Alberg, director, Food Research Institute, Stanford University, Cal.; Dr. Raymond F. Bacon, director, Mellon Institute for Industrial Research, Pittsburgh; Dr. F. R. Eldred, Chemical Consultant, Eli Lilly & Co., Indianapolis; Dr. Reid Hunt, Professor of Pharmacology, Harvard Medical School, Boston; Dr. Treat B. Johnson, Professor of Organic Chemistry, Yale University, New Haven; Dr. Julius Steiglitz, Chairman of the Department of Chemistry and Past President of the American Chemical Society, and E. G. Taylor, Chief Chemist of Parke, Davis & Co., Detroit. The report was framed by Dr. Steiglitz, Dr. Hunt, Dr. Johnson, Dr. Eldred and Dr. Herty, and was unanimously approved by the entire Committee.

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The Problem of Special Education for the Deaf Child

THE opening decades of the Twentieth Century have witnessed great advances in every department of public health, but none greater than the improvements which have been made in the education of the deaf child. The very recognition of the fact that uneducated deaf people are a menace to themselves and others was a greater forward step, but when Helen Keller was led from blank silence into a world-famed literary career, the possibilities of salvaging the deaf became widespread.

One of the greatest obstacles has been the prejudice against beginning treatment early, the mother, aided and abetted by the soft hearted physician, optimistically hoping that hearing will develop and delaying training until the years of language formation have been passed. During this period the mind of the deaf child is struggling to establish mental contact with its mother who in her ignorance can reply to the child's interrogative gesture only by a smile, a nod, or a shake of the hand. After the age of seven it becomes increasingly difficult to train these children. Their training should begin at three, a training in which the expert teacher, the mother, and the physician must cooperate.

The medical profession has been singularly backward in recognizing the fact that for the most part the solution of this problem lies in the development of the child's mind through education rather than by attempting to improve the child's hearing. Certainly, no promising method of restoring hearing, even in part, should be neglected but it should never be held as a reason for delaying training which to be really successful should be initiated at the earliest dawn of intelligence.

Social and Economical Aspects of Insurance

INSURANCE is fundamentally social in nature. Whether purchased to stabilize a business, to protect against fire losses, to save dependents from poverty, or to provide against physical incapacity in the proposer himself, it seeks to apply to the unpredictable circumstances of the individual life the precise percentages which are easily calculable for the group, making possible the distribution of the risks of any reasonable contingency.

The socially minded incline to insurance. It is the man capable of holding himself to a remote objective who through insurance accumulates a fund to provide against the crises possible in his business, who employs an endowment plan for the education of his children, or who capitalizes his own earning power. The very stability that the sense of protection affords is socializing in effect and tends to maintain the social position of the protected group.

The least advanced citizens are the least protected. It is noteworthy that a broadened scope of protection has usually been accompanied by better health practice and the control of conditions which make for the improvement of the health conditions of the group affected. The excessive mortality rate of the class of people covered by small policies has been the subject of special investigation which discloses the fact that the group which carries the smallest insurance against the unforeseen contingencies of life are the most prone to neglect sanitation, to ignore nutritional requirements, or to observe the simplest laws of hygiene. In this economic reasons are to be considered, but inevitably as man visualizes his future and sees himself as a social factor, he conserves his forces and directs his activities to contribute toward the remote social objective.

In point of fact, social position to a large measure determines the insurability of a life. The selection of lives from the viewpoint of insurance is not entirely a matter for the medical profession. Lister[1] in his recent book on "Medical Examination for Life Insurance" expresses this in his statement that "a man with an insurable form of heart disease is acceptable only if his

[1]Edwin Arnold & Co., London, 1921.

occupation is regular and sedentary and his exercise discreetly governed. A tuberculosis danger is regarded less anxiously in a farmer than in a draper or clerk." It is because final assessment is on the basis of the social and hereditary background that the clinical experience of the physician must be modified by the analysis of the actuarial department. The significance of early breakdown may be directly due to position in life. Lister gives 1908 figures on mortality by occupation, ages twenty-five to sixty-five, varying from 524 for clergymen to 1,808 for inn keepers. Brewers are second only to inn keepers in their high mortality while musicians, surprisingly, rank third, whether from temperament or habit Lister does not venture to state.

Of interest in the evaluation of lives is what some actuaries consider to be an "attenuated vitality" in people living out of their native habitat. The peregrinations of men have long been considered highly important public health factors, but they are only now beginning to be considered in their larger aspects. The social uses of insurance, therefore, must be held to include the collection and analysis of all relevant data and their scientific application to the affairs of men, in the field of health no less than in the realm of economics.

Food Infections and the Spread of Food Contaminations

IN JORDAN'S admirable book on "Food Poisoning"[1] is a table of outbreaks of disease due to food, occuring between October, 1913, and October, 1915, based on data gathered from a press clipping bureau and other sources. The figures as given include 657 group and family outbreaks involving more than five thousand persons, and the author estimates that "probably several thousand outbreaks of food poisoning in families and larger groups, affecting at least fifteen thousand to twenty thousand persons, occur in the United States in the course of a year." This estimate of course includes all types of food poisoning due to infection, decomposition, and the presence of poisonous chemicals of various sorts.

During the past few years the influence upon health of foods contaminated with various types of bacteria has been studied with particular care. Outbreaks of botulism have been numerous and have attracted wide attention,[2] but true food infections due to members of the Gaertner group of bacilli have been surprisingly hard to find. This type of disease is relatively common in England and still more frequent in Germany, but public health workers have come to feel that in the United States clearly demonstrated infections of this kind must be exceedingly rare. Professor M. J. Rosenau of the Harvard Medical School has been engaged in a comprehensive study of the subject for the National Canners' Association for a period of four and one-half years without finding a single authentic case until the present time.

At last patience has been rewarded and Rosenau and Weiss[3] report a quite typical outbreak among a group of students in Washington, D. C., in which eighteen out of twenty-five students who had attended a spread at a fraternity house were affected. The epidemiological evidence pointed clearly to bread pudding and *B.enteritidis* of low virulence was isolated from the food in question. The method by which the bread pudding became contaminated was uncertain although milk is naturally suspected and, as is common in such outbreaks, the pudding had been made early in the morning and stood all day in a warm kitchen, giving ample opportunity for bacterial growth.

By a curious coincidence it happens that a similar case has also just been reported by Krumwiede.[4] The infecting organism in this instance was *B.suipestifer* (distinguished from *B.enteritidis* by failure to ferment arabinose and to blacken lead acetate media); and the food was tapioca pudding. The particularly interesting thing about this second outbreak is the fact that the raw materials used for the pudding had been thoroughly heated and that contamination was apparently transferred from another food, which was subsequently itself heated and consumed without harm. It is evident that we must still be on our guard against food infections of this type and that the ways by which contamination may be spread are many and devious.

Therapy Based on the Control of Intestinal Putrefaction

APOSTLES of long life, from Cornaro to Stephen Smith, have always placed stress on moderation in the use of the high protein foods, and most of them have laid emphasis upon the value of that most primitive of human diets, milk. Since the time of Bouchard (1884) evidence has accumulated to show that the putrefactive decomposition of protein foods in the intestine leads to the formation of products which are toxic and which when absorbed produce very definite transient conditions of malaise; while it has been suggested that such autointoxications

1. Jordan, E. O.: Food Poisoning, University of Chicago Press, 1917.
2. Rosenau, M. J.: Preventive Medicine and Hygiene, Appleton, New York, 1921, p. 706.
3. Rosenau, M. J., and Weiss, H.: Jour. A. M. A., 1921, vol. 77, p. 1348.
4. Krumwiede, C., Prevost, D. J., and Cooper, G. M.: Paper read before the Society of American Bacteriologists, Philadelphia, December 28, 1921.

may be of profound importance in connection with the acceleration of degenerative diseases of various types.

As early as 1886 Hirschler, Miller, Ortweiler, and others suggested the feeding of carbohydrates as a means of counteracting such putrefactive protein decomposition. The work of Tissier, and above all of Metchnikoff, attracted wide attention to the possibility of attaining the same end by modifications in the bacterial flora of the intestine. Metchnikoff's advocacy of the use of milk soured by *B.bulgaricus* or by ingestion of cultures of the organism itself, as a method of promoting longevity attracted wide attention fifteen years ago, but results were conflicting and the practice of sour milk therapy gradually fell into disrepute.

The questions at issue have at last received at the hands of Rettger and his pupils a thorough scientific analysis which apparently explains conflicting earlier results and places the control of intestinal putrefaction upon a substantial basis; a result which constitutes one of the most important contributions to bacteriology accomplished within the past decade. The principal points brought out by these investigators[1] may be summarized as follows:

B.bulgaricus is an organism which is very active in the *in vitro* souring of milk but its implantation in the intestine is exceedingly difficult. The closely related *B.acidophilus* on the other hand is normally present in the intestine in small numbers, is easily stimulated so that it takes a predominant place in the intestinal flora, and may easily be implanted by the feeding of pure cultures. It may be increased so as to dominate the intestinal flora either by administration in the form of a pure culture or by the feeding of lactose or dextrin, or by a combination of these two procedures; and the value of feeding either sweet or sour milk under ordinary conditions lies, neither in the bacterial flora of the milk nor in the effect of the acids which it contains, but in the stimulating effect of the lactose upon *B.acidophilus* already present in the intestine. When Metchnikoff and his associates fed milk containing *B.bulgaricus* and thought that they detected a corresponding increase of *B.bulgaricus* in the stools they were really observing an increase in *B.acidophilus* due to the lactose fed and were misled by the similarity of these two related forms. The evidence presented by Rettger as to the possibility of affecting a change in the bacterial flora within a period of four to six days by feeding *B.acidophilus* or by feeding lactose or dextrin is complete and convincing and already[2] reports are coming in as to favorable clinical results obtained by such methods of treatment in a wide variety of pathological conditions. As a result of these investigations it seems probable that therapy based on the control of the flora of the intestine will once more come to the front and that its possibilities will receive exhaustive study during the next few years.

1. Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of the Intestinal Flora with Special Reference to the Implantation of Bacillus Acidolphus, Yale University Press, 1921.
2. Cheplin, H. A., and Wiseman, J. R.: Boston Med. and Surg. Jour., 1921, vol. 185, p. 627.

Male Dress Reform—The Necessity for Bodily Ventilation

IF INDUSTRIAL hygiene has brought forth one incontrovertible fact, it is that there is a direct relationship between the ventilation of the work room and the efficiency of the worker. Physiologists have determined that the reason that moist warm temperatures reduce efficiency is because of the difficulty of getting rid of bodily heat, particularly in those situations in which the atmosphere is stagnant. Conversely, those who live and work in an environment approaching that of the outside air are not only more useful workers but they also lead longer, healthier lives.

The reason is not far to seek. Man gets rid of his excess heat by perspiring and this physiological process is as necessary to his well being as is panting to that of a dog. Unless this perspiration is evaporated and heat loss produced thereby, he is surrounded by an envelope of moist air, an excellent nonconductor of heat, and in consequence, a greater or lesser degree of heat prostration results. Thus many of the ill defined ailments observed in certain trades are nothing in the world but chronic heat poisoning. These facts are well recognized and factory laws in general require that workshops shall be well ventilated.

It is curious that this principle has not been more generally applied to the clothing of man, *i.e.*, that steps have not been taken looking to the improvement of the body of the individual.

Man possesses enormous powers of resisting cold, yet there seems to be a deep-rooted antagonism to working and living in a temperature much below 68° F. We are taught from childhood to be afraid of taking "cold" but it would be far more logical to teach the danger of taking "heat." The modern house is so constructed that it almost duplicates the climatic conditions of the shady Tropics and out-of-door games and other artificial exercises are necessary to keep healthy a body which normally should be maintained by the struggle to obtain food.

The clothing which is worn by the average male, in the Temperate Zone, contributes not a little to the bad ventilation of the body and by reason of its many constrictions, it reduces the exercise of the musculature very considerably.

The feet are incased in stockings which hold both heat and moisture and over this layer are shoes made of leather and canvas and rendered almost water-tight by an outer coating of wax or enamel. They bind the foot to deformity and its muscles are atrophied by non-use. The leg is constricted by stocking and garter, outside which is a pair of trousers which bind the knees, thighs, and hips. The thighs are incased in drawers which may extend to the ankles binding calves and knees still more and tightly buttoned over the hips and around the waist. In the case of breeches, motion is still further restricted by their being buttoned from the knee downwards and this is accentuated by puttees, either of stiff unyielding leather or a bandage of wool tightly applied. Trousers or breeches tightly encircle the waist and to make sure that the abdominal muscles shall be thoroughly crippled, a belt of leather or non-elastic cloth is worn. An undershirt of cotton or wool envelops the body from the neck almost to the knees and perhaps from the shoulders to the wrists. It may interfere with respiration and over it is a shirt, with constricting bands of stiffly starched cloth which bind the neck and wrist. In the case of the dress shirt, a cuirass-like plate extends from the supra-strenal notch to the symphysis pubis. A stiffly starched collar which impedes the use of the muscles of the neck, and a necktie of no imaginable use whatsoever, top off the shirt. A snug vest of cotton or wool tightly clinches the thorax, only to be covered by a coat which restricts the shoulders, arms, and trunk. Add to this a heavy overcoat or raincoat and a hat which tightly encircles the cranium and the costume is complete, unless a cane, which is necessary in order that this poor be-swaddled male may walk, be included.

Women have displayed far more intelligence in reforming their clothing along hygienic lines. A man's clothes average about nine pounds in weight, a woman's usually less than five and it is a well known fact that a girl in an evening gown can dance a man in a dress suit to death.

The solution of the problem lies, of course, in the reform of men's clothing. The innumerable failures to reform women's dress by direct methods and the accomplishments of fashion to that end point out a general line of attempting this The improvements which have been brought about in female garb were not too difficult to produce because the fashion of women's dress is in a constant state of mutation and if a woman can be shown that a certain thing is stylish, she will eagerly adopt it. Not so with man. He fatuously cleaves to the necktie, a vestigial remnant of the Middle Ages; he demands a ribbon for his hat for no other reason than that the floppy head gear of Louis XIV was liable to be blown off; buttons which once supported a sword belt still adorn the back of the cutaway of the Disarmament Era and three or four buttons at the cuff are the fossilized relics of the days when men used to roll up their sleeves. Men cling conservatively to uncomfortable, unhygienic garments and they will stiff-neckedly resist a change unless there is a subtle appeal to their vanity.

Changes are coming slowly; underwear is being improved; the soft-collar and the sports shirt are steps in the right direction; the War popularized a shoe which somewhat approaches the shape of the foot, but, unfortunately, there remain to be worn out a lot of puttees. It still is impolite for a man to appear in his shirt-sleeves; walking without a hat is frowned upon, and the man who attempted to traverse Fifth Avenue in really hygienic clothing would continue his journey in a patrol wagon. Yes, the ideal is still a long way off. A pair of sandals and a loin-cloth would be about right, but, as Carlyle has pointed out, such a garb would detract from the dignity of the Courts, so it must be said that the one-piece dungaree which automobile mechanics wear is about the best to which we have attained at this stage of our sartorial development.

The Danger of Using the Mouth as a Pocket

THE study of Chevalier Jackson's epoch-making work in bronchoscopy and esophagoscopy cannot but impress the reader with the danger of using the mouth as a pocket. The list of foreign bodies removed by these methods is a legion and includes such familiar objects as coins, thumb tacks, hair pins, safety pins, shingle nails, staples, and collar buttons. As might be expected, children contributed such articles as toy jacks and grains of maize, but it is surprising that such a large number of the patients are adults. Children carry various objects in their mouths because they have not yet learned that the sole function of the mouth, aside from speech and sound production of other sorts, is that of a portal of entry for food and drink, but evidently many adults never learn this lesson. In many trades, workmen habitually use the mouth as a storage place for such things as nails, cotter-pins and the like, a dangerous and reprehensible practice.

The removal of these foreign bodies is a delicate operation, one not without danger. Special training and the continual practice of a highly specialized technic requiring the use of the x-ray and complicated instruments, which are really enormous prolongations of the fingers, are necessary for the extraction of things which need

never have entered the body had the simple precaution of keeping things out of the mouth been followed.

Industrial surgeons and other health workers are interested in making such operations unnecessary. Since this is entirely a matter of personal hygiene, the means of prevention is the education of the individual. Warnings something like the above are therefore suggested.

Is Your Mouth a Pocket?

The mouth is the hole through which you talk and by which food and drink enters the body.

Put nothing else into it.

If you use it as a pocket for nails, pins, buttons or any other object you run a risk. Such objects may be swallowed or breathed into the tubes which lead to the lungs. The removal of such things from the body is dangerous, painful and expensive. If allowed to remain they may cause death.

Your mouth is not a pocket. Do not use it as such.

The Psychology of the Frank

SINCE March 4, 1921, the most popular indoor sport in the United States has been the evolution of schemes whereby the Government may save money. A citizenship which had just finished the inquisition of the income tax had been roused to the consciousness that somehow, someway, the administration of our commonwealth of interest was costing altogether too much. Astute congressmen with auditory apparatus more keenly adjusted than the most sensitive dictaphone, heard the first faint whisperings of the self-communings of the people and there followed such a pruning of the plum tree as was never seen before. Reform, re-trench, re-fuse, these are the watchwords of the hour and the rain of economy fell alike on the graft and the ungraft and probably to pretty good purpose.

In the epidemic of parsimony which followed, the writer steadfastly refused to be infected; there was such a surfeit of nickle-squeezing patriotism that it seemed almost wanton that other massive brains should be applied to the task. Yet day by day the flood of Government publications which reached his desk began to make an impression until he was well inoculated with the money-saving virus, the various Government circulars acting as the vehicle of infection.

When one receives the same monograph a dozen times over, addressed variously to "Dr. John Smith," "Smith, Dr. John," "Capt. John Smith, M.R.C., U.S. A.," "Maj. John Smith, U.S.A.," "Dr. John Smith, Attending Surgeon, St. Benedick's Orphanage," one begins to think. When one gets printed documents on every conceivable subject from "Memorial Address on the Late Hon. Hidopholus Squithers, M.C." by your Representative, to "The Prevention of Flat-Feet in Sows" by the Department of Agriculture, the suspicion is apt to be created that all is not sanitary in Denmark, especially when these documents come in bushels, flocks, and parasangs. Also there are the form-letters, a little more individual in their touch, but nevertheless obtrusive invasions of personal privacy. One government bureau wants to know if my daughter is fond of sweets, bites her nails and talks in her sleep; another asks me to collect data on the importation of snails, while another asks me what I have been doing about eugenic legislation. Having collected these informative facts they are compiled, published, and distributed and the vicious circle continued.

Once one realizes that he has succumbed to the infection, he starts hunting for a remedy, frequently without waiting to trace the fault to base and in this instance the antidote which first suggests itself is to control the printing and multigraphing which is done by the Departments. Some fairly definite measures are now in force to control printing but the mimeograph and neostyle are helping to dodge them and even if these duplicating devices were controlled, carbon paper and typewriters would continue the flood. The basic fault lies not in what is printed or how it is manifolded but in how it is distributed.

"Then the remedy lies in the mailing lists, let's revise 'em," cries Economy. "Very true, but how will you keep them automatically revised?" answered Practicality.

The fault lies in the use of the frank. It is so easy to slip something into an envelope bearing the penalty mark and to drop it into the mail chute. Why worry if Dr. John Smith gets a dozen copies of a circular on a subject about which he knows little and cares less, "It doesn't cost anything!" Doesn't it though? It costs the envelope, the paper, the printing, the clerical services and the mail charges. Of course the total of these for a single piece of mail is infinitesimal but when multipled by millions it runs into pretty big money—money of which there is no accounting. That is the great evil. Nobody can say accurately how much is the annual postage bill of the Legislative, Judicial, and Executive branches of our Government, although it is estimated at about

$14,000,000. It is impossible to determine whether or not the Post Office Department is being operated at a real loss so long as the franked envelope is in use. There is no limit to the amount of mail matter which any agency of the government may send out except the quantity of stationery and printed matter which a Department may secure and induce the Government Printing Office to mail. As for the abuse of the frank, it has been estimated that at least 2 per cent of letters franked are not properly official business.

The remedy is simple. Abolish the frank and substitute therefore government stamps which must be bought from the Post Office Department at current rates with funds which are appropriated by Congress for the specific purpose.

A department which will have to account to Congress for its postage bill is going to scan its mailing lists pretty carefully, thereby reducing the visible supply of kindling. The mere act of affixing stamps to envelopes will produce a psychological reaction provocative of real economy because everybody naturally hates to expend stamps, and it will supply accurate data on the total cost of a given publication. Of course the big saving comes from the coincident reduction in paper, printing and clerical expenses not to speak of the tremendous sums annually paid for the transportation of thousands of tons of franked government mail.

Hygiene's Past Successes Prophesy Future Victories

IT IS now more than forty years since Carlos Finlay attributed the spread of yellow fever to the mosquito. It is almost twenty-two years since Reed and his co-workers confirmed that hypothesis. It is a trifle over twenty-one years since Gorgas undertook the application of this knowledge to the eradication of the disease from Havana.

Fifteen years ago (1907) the disease which for more than two centuries had made frequent incursions along our Atlantic and Gulf Coasts with enormous losses of life and treasure, was present in Mexico, Guatemala, Nicaragua, Costa Rica, Colombia, Ecuador, Venezuela, Brazil, Cuba, Barbadoes and Trinidad. During the year 1921, it was present in Mexico, British Honduras, Peru and Brazil. The total number of reported cases in these countries last year did not equal what would have been considered a small outbreak a decade ago. The disease has been stamped out in Peru. It is being actively combated in Mexico and British Honduras. In a few years yellow fever will be a pathological curiosity.

The methods of fighting it have been marvelously simplified. In the earlier days, it was hard to get away from the patient and much effort was expended in the fumigation of presumably infected premises, in the hospitalization and screening of the sick and in the observation of persons theoretically exposed to the infection. These things, desirable though they are from the view point of curative medicine, have been found to be epidemiological niceties so far as eradication operations are concerned and the campaign of today is focused on the control of the breeding of the insect vector, the Aëdes. When these are reduced to a sufficiently low index, the disease perforce ceases since there are not enough mosquitoes left to bite infectious patients and subsequently to transfer the disease to non-immunes. Since yellow fever is now immediately attacked along these lines as soon as the first case is reported, it is snuffed out before it has a chance to spread to new territory, hence its distribution area has been contracted to such an extent that in a short time the jaundiced handmaiden of death will be as extinct as the passenger pigeon.

As the crowning touch to the solution of this great sanitary problem comes the work of Noguchi. Sternberg's X bacillus, Sanerelli's *Bacillus icteroides*, the *Myxococcidium stegomyiae* of Parker, Beyer and Pothier and Seidelin's *Paraplasma flavigenins* each occupied the stage for a short time as possible causative agents of yellow fever only to be discountenanced and retired to obscurity. Stimson's modest observation of the *Spirochaete interrogans* went almost unnoticed and was wellnigh forgotten until recently when Noguchi announced its probable identity with the *Leptospira icteroides*.

After all these disappointments, the sanitary world has been a little chary of accepting too readily that organism as the cause of yellow fever but certainly the evidence brought forward by Noguchi is extremely suggestive. He has worked out in careful detail the morphological, staining, and cultural peculiarities of this extremely delicate parasite; he has tested out its resistance to heat, desiccation, putrefaction, and disinfectants; he has reproduced the symptom-complex of yellow fever by its inoculation into guinea pigs; he has transmitted the disease from guinea pig to guinea pig by the bite of the female *Aëdes;* he has demonstrated Pfeiffer's reaction to the organism with the serum of yellow fever convalescents and has developed a polyvalent serum for the cure of the disease and a vaccine for its prophylaxis. The results already obtained in the treatment and prevention of yellow fever by these are in the highest degree encouraging.

Think what this means! In less than a quarter of a century a pestilence has been stayed to the

saving of thousands of lives and untold millions of dollars and vast territories have been freed of a disease which prevented the exploitation and colonization of some of the richest portions of the globe. The creation and operation of the Panama Canal has been made possible and travel once fraught with greatest risk has been made safe and easy.

Best of all, this is only the beginning of what research and sanitary science are going to accomplish. It is no vain prophecy that many of the diseases which at present shorten the average life-span and cause tremendous losses to society to the hindrance of the advancement of the human race, will one day be eradicated. Already, the incidence of typhoid fever has been marvelously decreased, the tuberculosis death rate is falling and cancer shows evidence of decline. Social hygiene, child hygiene and industrial hygiene are increasing longevity and diminishing morbidity. There is an enormous work ahead in the control of the sputum-borne infections; there are still almost wholely unexplored realms of disease awaiting conquest but that the mind of man will solve these problems one by one there can be no doubt.

THE initial appearance in January of the *Journal of Metabolic Research* is to be regarded not merely as another adventure in scientific journalism, but as constituting an important laboratory news service to a special field, and an interesting experiment in scientific collaboration. Physiological studies alone do not explain the intricacies of assimilation, the work of the chemical laboratory is required, and additional information from the rather widely separated fields of morphology, general biology, pathology, and several departments of medicine. The *Journal* plans to tell the whole story and Frederick M. Allen, as editor, collaborating with something like fifty representative research workers in their several fields, will bring out earlier than has been possible heretofore, and in better sequence, such studies as may be counted distinct contributions in metabolic study. The magazine will serve equally well laboratory or clinical investigators and promises to assist materially in the development of this scientific field.

THE scattered publication of articles having to do with occupational therapy has made it so difficult to keep in touch with the rapidly accumulating literature in this field that great interest attaches to the appearance of the *Archives of Occupational Therapy* as the organ of the American Occupational Therapy Association and the official channel for the publication of materials of fundamental importance in this special field. If occupational therapy is to achieve a definite scientific basis it will be through sifting the best practice to find what is most applicable, the crafts to find what is most useful, and workers to find who is most discriminating. The leaders in this special field are represented on the editorial staff, which includes such authoritative workers as Professor Jules Amar, Laboratoire de Physiologie, Paris, France; Dr. R. Tait McKenzie, University of Pennsylvania; Dr. Herbert J. Hall, President, American Occupational Therapy Association; Dr. G. Canby Robinson, Johns Hopkins University; Norman L. Burnette, Canadian National Committee for Mental Hygiene; and Dr. R. Tunstall Taylor, of the University of Maryland. The Journal is edited by William R. Dunton, Jr., M.D., of Sheppard and Enoch Pratt Hospital, Towson, Md.

A NATION-WIDE campaign in the interest of physical training in youth as a means of promoting disciplined leadership in later years is the avowed objective of the effort of the National Physical Education Service to secure the passage of the Fess-Capper bill for universal physical education. Under this Act Federal aid would be extended to any state which developed a state-wide program of physical education and which within a period of five years undertook to provide physical education for every child from the age of six to the age of sixteen years. The Act would be administered by a division of physical education within the Bureau of Education. Provision is made under the same bill to devote the sum of two hundred thousand dollars annually to the use of the United States Public Health Service in making "studies, investigations, and demonstrations relating to the health of children of school age, and the sanitation of school buildings, equipment, and grounds."

Whatever may be the existing differences of opinion in the ranks of educators as to manner and method, whatever variations mark the numerous cults, all are able to argue and are willing to admit the advantages of universal physical education. Children must not only be allowed the time to grow up, but must receive the training that will enable them to develop their full physical and mental stature. Certainly they cannot be expected to develop those muscular coordinations which spell efficiency and health and are so closely related to mental reactions without carefully planned and consistently enforced physical training. Good bodily mechanics are indespensable to good health and are closely related to mental efficiency.

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A Neglected Phase of Workmen's Compensation

BY E. H. LEWINSKI-CORWIN, EXECUTIVE SECRETARY, NEW YORK ACADEMY OF MEDICINE, NEW YORK CITY

IN THE last decade we have witnessed in the United States a phenomenal extension of legislation for compensation against industrial accidents. Ten years ago a bitter controversy was raging around the desirability, practicability and constitutionality of workmen's compensation laws; the proponents were exaggerating the benefits that would flow from the enactment of such laws; and the opponents were likewise vociferous in pointing out the dire consequences that would follow the adoption of such paternalistic and socialistic measures.

After ten years of experience with this form of social provision, it is safe to say that workmen's compensation legislation has been a success, although the diminution of the accident rate which was predicted to follow has not materialized in many industries, and the sustenance provided for the families of the injured has not been sufficient to replace fully the economic loss. On the other hand, neither has malingering become rampant, nor has industry been crushed by the added weight put upon it by the insurance cost.[1]

When it had been shown that American industry on the average kills three men every hour of the year, and that each year about seven hundred thousand become disabled for at least four weeks, society was moved to the quick. In the laws enacted as a result of these disclosures, the stress has been laid on economic relief; and the differentiation of premium rates was relied upon, jointly with the safety movement, to act as a deterrent to the frequency of accident occurrence; very little thought was given at the time to the adequacy of medical provision for the victims of the accidents. As a result, our laws are particularly defective in this regard. With the progress of administration, the lack of original emphasis on the provision for adequate medical attention and of ways and means for securing rapid recuperation and functional re-education of the injured is becoming more evident. There is an imperative need of improving the existing laws in this respect.

The economic folly of elaborate compensation schedules for accidents that could with forethought be prevented finds a parallel in methods of administration which permit injuries to go on to hopeless handicap which scientific care and functional re-education could restore.

Service is unlikely to become equalized through uniformity of legislation, but the critical comparison of compensation schedules, the distribution of curative efforts, and the appraisal of end results should make interesting conclusions possible as to the efficacy of the medical methods extant and promote better organization and better work.

The improvement involves changes all along the line. There should be more liberal provisions as to the amount of medical and nursing care and the period of time the beneficiaries should be entitled to such care; more satisfactory arrangements with the agencies and agents concerned in the treatment and care of the sick, and more competent and vigilant supervision over their work.

In many states, the laws provide for very brief period in which medical attention is to be given; others limit the amount of money to be spent on the case. Some laws allow a free choice of physicians; others limit the injured man in the choice of physician by his employer or insurance company. In some states, there has been worked out a schedule for compensation for injuries and for services of physicians; in others, more elastic arrangements prevail. In some instances the red tape of medical testimony is very onerous to everybody concerned; in others more direct and efficient methods have been adopted. In some states satisfactory arrangements have been made with properly selected institutions for the treatment and functional re-education of the injured; in others, very little has been done in that respect, medical care having been farmed out to some commercial, inadequately equipped agencies. In other words, the technic of administration with regard to the medical features of workmen's compensation is very unsatisfactory. There is need of thoroughgoing study of the problem of administration of the medical benefit in workmen's compensation.

The war has given stimulus to the

1. Fisher, Willard C. American experience with Workmen's Compensation, American Economic Review, x, No. 1, 18-47, March, 1920.

2. Public Health Committee of the New York Academy of Medicine. Medical Aspects of Workmen's Compensation, Med. Rec., October, 1921.

work of industrial rehabilitation and many states have taken advantage of the congressional appropriation to further the development of vocational re-education of industrial cripples, New Jersey and California having made arrangements with institutions especially devoted to this kind of work. In the state of New York, a special fund has been set aside for the purpose. It is estimated that this fund will eventually amount to more than two hundred thousand dollars, and it is derived from the payments made by the insurance carriers in case of death of a worker without dependents. The law provides that in such instances one thousand be paid by the insurance company, one hundred of which goes to the State Fund, and nine hundred to the special fund for vocational re-education work. Very little, however, has as yet been accomplished along this line. It is a source of surprise that accident insurance companies, which in most of the states are the main carriers of workmen's compensation insurance, should not have worked out a more adequate system of providing treatment for industrial cripples. They undoubtedly rely on "the law of averages," but the question may be raised with propriety whether the best results have accrued to the injured from the practice of furnishing an "average" good service and accepting the financial risk of carrying the failures to whom the "average" medical service has not proved beneficial. It must be remembered that traumatic surgery has become a distinct specialty requiring special training grounded on an adequate foundation in general surgery, and that provision for physio-therapeutic equipment is essential for a considerable proportion of the injured.[2]

A study of the results obtained in a large number of cases would be of extreme value to a proper understanding of the present functioning of the workmen's insurance law and would point the way to a needed reorganization. It would give a picture of conditions and lead to important deductions as to the results of medical treatment under various systems of organization. For example, in states where industrial accident work is done by physicians or surgeons employed by the insurance companies or industrial plants, by ordinary practitioners, or by groups of practitioners working as a commercial unit, or by special hospitals, the results could be compared with each other and interesting conclusions reached as to the efficacy of the several methods of providing medical care. Such a study would undoubtedly result in devising rules of procedure which would be of inestimable value to the administrative officers and to the injured workman, now too often neglected.

Health Problems Involved in Noise and Fatigue*

Rhythms, Cadences, Periodicities Regulate Human Activities, but Noise Lessens the Aptitude for Work

By PROFESSOR HENRY J. SPOONER, M. I. Mech. E., F.G.S., Etc., Member of the International Committee on Industrial Fatigue, London, England

I MAY explain that my experience in dealing with fatigue problems has naturally led to my attention being focused day by day on the causes of noises whenever and wherever I have heard them, and on their possible treatment for reduction or elimination. And therefore I may venture to make the following brief remarks on the above classification.

(1) The noise due to traffic in a principal street of a city—such as Cheapside, in the City of London—is so great that the offices along both sides of the street have to be fitted with double sashes to make conversation and mental work possible; with the result that ventilation is bad all the year round, and in the summer the rooms are suffocatingly hot.

(1a) *Noise due to the condition of the roads.*—Main roads, as ordinarily constructed—particularly the asphalt ones—soon get into a faulty condition, the heavy motor traffic causing ruts and holes which have a damaging effect on the vehicles and are the cause of much noise, particularly if the vehicles are badly worn. Rubber roads, if found to be practicable for heavy traffic, would for important city roads be a perfect solution of the problem; they would be practically noiseless, and would increase the life of all vehicles and of horses using them. Their cost, of course, would be great, but that would probably be a good investment in the case of most of our principal intramural roads, due to the savings on maintenance and sweeping.

A project is afoot in London to make a rubber road around Charing Cross Hospital, at a cost of something less than £10,000. A similar beneficent project for making a rubber road around St. Thomas' Hospital had to be abandoned owing to its cost, but the corridors were laid with rubber as a compromise. Many natives and visitors have appreciated the noiselessness of the Savoy Courtyard, and the entrance to Claridge's Hotel, which are paved with rubber; the present price of which is under a shilling a pound. But when the roads under the hotel archways at Euston Station were paved with rubber some forty years ago, the price was probably twelve times as much. Freedom from noise is worth a great deal, but the question of durability under heavy traffic has to be decided. The problem is a very important one. On the one hand, the effect of various kinds of vehicles on roads and pavements has to be considered, and, on the other, the effect of roads and pavements on the vehicles. The experiments that have been made by Mr. Arthur Harrison, C.E., on a section of road in Borough High Street, London, laid with rubber-capped blocks, since 1913, with heavy traffic averaging over 190 tons per yard of street width per hour, have been most encouraging. But the evolution of noiseless roads is of course a matter of prolonged research and experiment. The fact is, that the science and practice of road making in this country has not kept pace with the new type of traffic which has come into being during the past twenty years or more. Indeed, the construction and tinkering maintenance of some of our important roads is little short of a scandal. Strangely enough, we have—so far as I am aware—no graduate course in highway engineering in any of our universities comparable with that in Columbia University in the City of New York.

(1b) *Noise due to the working and*

*Part I of this article was published in the February issue of The Nation's Health.

running of the vehicles on our roads, railroads, and in the tubes. A high power, high grade motor car is almost noiseless on ordinary roads; on the other hand, badly worn ones, particularly of the heavy commercial type, also buses and taxis, create a terrible amount of noise, and this is accentuated in the case of motor bicycles when the exhaust cutout is opened, but this should not be allowed except in the open country. Unskillful manipulation of the brakes and clutch of motor vehicles—particularly on hills—is also a cause of much annoying noise.

Even a contractor's cart or wagon, moving at a walking pace, usually makes a great deal of annoying, easily preventable noise, due to the backlash of the wheel hubs on the axle collars.

(1c) *Noise due to the shrieking of railway whistles and to shunting operations, etc.*—The noise due to the exhaust from locomotives and to the blowing off of steam from the safety valves is very annoying, particularly at night, but the shrill, shrieking, ear-splitting railway whistles should not be allowed as they could easily be replaced by low toned ones as used on the Caledonian railway. As the substitution of electric traction for steam traction proceeds, this nuisance will decrease, but electric driven trains are far too noisy, particularly those in our tubes. The noise is bad enough as heard in the carriages, but on the platforms of the carriages where the guards stand, it is simply unbearable; and the jolting, particularly in taking the curves, is so severe that, coupled with the noise, it must be most damaging to the health of the railway men, to say nothing of the passengers. This unsatisfactory condition of things should not be allowed and it is time that public opinion asserted itself. There is also a great deal of preventable noise in shunting operations that calls for attention.

(2a) *Noise due to the running of prime movers.*—In works situated near residential property the installation of prime movers of the explosion type should be avoided, unless they have abnormal foundations, as objectionable earth tremors are transmitted, often to considerable distances. Further, the exhausts of such engines are too often very ineffectively silenced. The almost noiseless electric motor for each main shaft, and for important machines, approaches the ideal, and can often be economically arranged to replace gas engines and steam engines, the current being supplied from a central power station. Doubtless, in due course, this relatively cheap power will be freely used in mills and factories, to the great advantage of all concerned.

(2b) *Noise due to transmission machinery.*—Usually, there is far too much preventable noise in all transmission machinery, particularly in high-speed belt drives. If a belt has a lap joint, or is jointed by some form of metallic fastener, it is sure to be noisy, and very noisy if there be play in the shaft or spindle bearings. The ideal joint is one of a thickness uniform with that of the belting, such as the joint in Hendry's laminated belting, which gives an almost noiseless drive at all speeds; and the same can be said for the various forms of link belting. There is good scope for further improvements in the direction indicated.

(2c) *Noise due to the working of machines.*—Noise from the working of machines may be due to: (*A*) The use of a machine that is not the best for the job. (*B*) The nature of the cutting action. (*C*) Vibration set up by some unbalanced moving parts.

The noisy typewriters in common use are the bane of business men who have to concentrate their thoughts. The insistent, distracting clatter impairs their power to think clearly and quickly, and has a most fatiguing effect. But, fortunately, the happy substitution of pressure for impact of the type on the paper is the secret of the triumph of the ingenious invention of the silent typewriter.

The above classification suggests the following remarks:

(*A*) At the recent Efficiency Exhibition held in London, a riveting machine was shown in action, operated by wave power; 2,400 blows a minute were delivered to the work, and the noise was appalling! This was an example of a remarkable invention wrongly applied. On the other hand, we have in the substitution of hydraulic riveting for hand riveting, an ideal example of how to advance from the standpoint of noise elimination—an operation that was so noisy that few boiler riveters escaped deafness by the time they reached middle age, converted into one that is practically noiseless, and also one that produces a perfect job. The substitution of pressure methods for impact ones should be made whenever practicable, in the cause of noise prevention.

(*B*) The nature of the cutting action in some machines is such that the elimination of noise is impossible only its reduction being practicable. We have in high-speed circular saws, and in wood planing machines, etc., the most striking examples of this class. The noise from circular saws rapidly increases with their diameter, so that their size should be a minimum for a given job. Wood planing machines and spindle (moulding) machines are notoriously noisy, as they set up far reaching sound waves that have a most damaging effect on the nervous system of people even a good distance away from the machines. The character and intensity of the sound fluctuates considerably, and at times may reach a pitch that is unbearable to some people, and the mental torture is hardly relieved when the strident rolling hum tapers down for a time, as it is followed by dreadful expectancy on the part of the sufferer.

We have paid far too little attention to practical acoustics, and a rich reward awaits the genius who succeeds in suppressing the transmission of such noises; as indeed, it also awaits the genius who can invent some new and noiseless methods of cutting and planing wood.

(*C*) Apart from vibrations set up by faulty belts, already referred to, any revolving part out of balance causes that part to vibrate. For instance, violent vibrations, due to centrifugal force, are set up by an unbalanced spindle revolving some ten thousand times a minute, even if it be out of balance a few grains only at a radius of one-half inch from the axis. Grinding machines are often noisy, due to vibrations set up by a grinding wheel that has not been balanced; and this can be understood when it is realized that if it is half an ounce out of balance at a radius of three inches, a centrifugal force of five pounds will be set up when the wheel revolves at some 1,900 times a minute, and this would cause objectionable vibrations and noise. Of course, the effects of such vibrations are greatly enhanced when there are worn bearings with consequent backlash, and the spindle or machine is mounted on something that acts as a sounding-board. Fans are often very noisy, for these reasons. Some machines have quick-moving unbalanced reciprocating parts that set up vibrations, with resulting noise. When such parts cannot be easily balanced, the noise can often be greatly reduced by the use of simple rubber shock absorbers and the like. Of course, in some complicated machines it is the aggregation of many little noises that

in their cumulative effect become distressing.

The Blackburn weaving loom is a remarkable machine, but it is safe to say that it has never been designed and constructed from the standpoint of noise. There is a great opportunity for some young engineer to acquire lasting fame and the gratitude of his fellow citizens by silencing this noisy machine, without appreciably increasing its cost.

(3) *Industrial operations in which machinery is not used*—(a) Noise due to the use of hammers and other impact tools used in the operations of the coppersmith, the metal motor body maker and others, can often be much reduced by the use of more rigid support for the work. The fitter's vise is too often fixed on the bench some distance from a support.

(b) Noise due to the handling and transport of materials and work on conveyors and trolleys in shops can often be materially reduced by the use of rubber belts and tires.

(4) *Streets, and the home.*—(a) The noise due to cab whistles, and street calls of itinerant vendors of newspapers and food stuffs, etc., is often very disturbing, and calls for attention. During the war, the use of cab whistles in London was prohibited, and is still prohibited, to the relief of its citizens. Suitable signs, illuminated at night, are exposed at hotels and clubs, etc., when a cab is wanted.

(b) The quietude of the home is often disturbed by the activities in adjacent houses and flats of budding Paderewskis, Carusos and Melbas, and by the frolics of children. There is great scope for improved methods in building construction in the direction of soundproof floors and party-walls.

(c) The chiming of a good set of church bells may be acceptable music to many, but the almost constant ringing and tolling of church bells, that some districts are troubled with, may be a source of great annoyance to not a few, particularly to those whose minds must be kept clear. A case in point may be cited. Once at Warwick, Lord Chief Justice Campbell, irritated by the chimes of a neighboring church, shouted out, "Stop those bells!" suddenly adding, "Unless it be for Divine service, in which case, God forbid."

The crowing of vigorous roosters in saluting the dawn of day in populous districts need not be a nuisance, if boxes or low coops be fitted with proper perches about an inch above the bottom, and if the box or coop is of such a height that the cock can sleep in a comfortable way in the usual attitude of a perching fowl, but cannot stand upright, there will be no crowing until the birds are let out, for a cock cannot or will not crow unless he can stand up straight with his neck stretched up as far as possible.

This is a typical example of noise prevention, made possible by observing the habits of animals and by the exercise of common sense.

Detection of Vibration

If there be vibration in running machinery, there is sure to be noise, and vibrations occur when high-speed crankshafts, etc., are not running dead true. Simple dial instruments are used to detect the slightest wobble in rotating shafts, the magnitude of the error being magnified some thousands of times and indicated by the hand of the dial. But the Fullerton Vibrometer is a beautiful instrument that has a wider range of usefulness in the detection and investigation of vibration of running machinery, such as turbines, dynamos, alternators, and the like. The frequency magnitude and direction of the vibration are indicated, so that information pointing to the cause of vibration is obtained, thus enabling the engineer to eliminate the trouble. The design is based on the tuned vibrating reed principle.

From the standpoint of noise, rubber is an ideal material for floor-covering purposes, and for the treads of stairs, etc. It is noiseless, non-slipping, water and damp proof, durable, and hygienic. And these qualities also make it an excellent material for sole and heel pads. The importance of the use of this valuable material for such purposes to those whose work calls for concentration and freedom from the distracting noise of constant foot traffic, cannot be overrated.

Sound and Noise Facts

Unbalanced rotating and reciprocating bodies cause vibrations, and vibrations cause noise. Sounds pass through textile fabrics with great facility, a layer of even thick flannel or baize being found to intercept but a small fraction of the sound from a vibrating reed or buzzer. Sound has been sent through two hundred layers of cotton net, but a single layer of wetted calico was competent to stop it.

Windows rattle when carts pass a house, because glass is sonorous, and air communicates its vibrations to the glass. The window frame being shaken, contributes to the noise, owing to a vibratory motion communicated to the walls of the house.

Some pieces of the furniture of a house are a little agitated by the approach of a vehicle before we hear the noise it immediately occasions.

Every body which vibrates in the air, throws the air which surrounds it into similar vibrations, which extend outwards from the point of their origin in the form of a sphere.

The blow of a hammer on a wall at the upper part of a high house is heard as if double by a person standing near on the ground, the first sound descending through the wall, and the second through the air.

Badly proportioned rooms are noisy. The best proportion from the standpoint of acoustics is a double cube, namely, one whose height and breadth are the same, and are half the length. Probably the next best is one whose height, breadth, and length are in the proportions of one to two to three. With these proportions the reflections of sound as they strike the ear come always at a regular and commensurable intervals, and tend to have a pleasing note or effect. Not so, with badly proportioned rooms, in which the sound pulsations passing and repassing from side to side will very seldom coincide with those passing from end to end, or from floor to ceiling, the result in such cases will be that interference occurs when the sound waves are reflected from the surface of the room, and *noise* will be audible.

The transmission of noise in buildings can be reduced. Continuous beams conduct noise. Girders, beams, or joists should not run through a partition or party-wall, so that one unbroken piece lies under the floors of two adjoining rooms or shops. A single girder has been known in this way to convey noise from one side of a seemingly impenetrable wall to the other.

Various expedients employed for the purpose of *deadening sound transmitted through partition walls* are based on the fact that every change of medium resists the progress of the sound waves. Thus in a partition wall in which the space between the laths or canvas is filled with shavings or sawdust, we have (1) the air on one side of the wall, (2) the paper, plaster, and laths, (3) the sawdust or shavings, (4) the laths, plaster, and paper again; and every change of medium resists the sound waves.

Noise is often a nuisance. In a legal sense, nuisances are of two kinds, namely, (1) Nuisances at Common Law. (2) Nuisances under the

Public Health Acts, commonly called "Statutory Nuisances."

Nuisance in English law is either public or private. *A public or common nuisance* is defined by Mr. Justice Stephen as, "an act not warranted by law, or an omission to discharge a legal duty, which act or omission obstructs or causes inconvenience or damage to the public in the exercise of rights common to all his majesty's subjects."

A common nuisance is punishable as a misdemeanor at common law. It is no defense for a master or employee that a nuisance is caused by the acts of his servants, if such acts are within the scope of their employment, even though such acts are done without his knowledge and contrary to his orders. Nor is it a defense that the nuisance has been in existence for a great length of time, for no lapse of time will legitimate a public nuisance.

A private nuisance is an act of omission which causes inconvenience or damage to a private person, and is left to be re-dressed by action. It is not easy to define what amount of infringement of the rights of property will give a right of action. There must be some sensible diminution of these rights affecting the value or convenience of the property. "The real question in all cases is the question of fact, whether the *annoyance* is such as materially interferes with *the ordinary comfort of human existence*." (Lord Romily in Crump v. Lambert, 1867.)

Private nuisances injurious to health, may be summarily suppressed on application to the magistrates, under the Nuisances Removal and Diseases Acts.

Conclusion

In all civilized countries man has too long suffered from the tyranny of noise, and nothing short of rebellion against it is likely to ameliorate his lot. We may energize in forwarding the cause until we have enlisted the goodwill of a large body of industrialists and others, but even that would not improve matters much within a reasonable time, as the masses are always decades behind the times in matters relating to efficiency; or as Burke aptly stated it, "I have constantly observed, that the generality of people are fifty years at least, behind in their politics."

Manufacturers and others should realize that noise prevention and reduction is a paying proposition, as there are many cases on record of material increases of output occurring when a change from noise to comparative quietness has been made, even when such changes have been made subject to duress.

Only active propaganda is likely to accelerate the movement, and we venture to suggest that special attention be called for on the annual observance of Fatigue Elimination Day—the first Monday in December—for noise in its cumulative effects probably represents one of the most active causes of fatigue, and therefore one of our greatest wastes, as human resources are the foundation of a nation's wealth. Indeed, we should bear in mind Beecher's dictum, that "little wastes in a great establishment constantly occurring, may defeat the energies of a mighty capital," and tackle the problem of noise prevention in the spirit of Lord Palmerston, who said, "Show me a practical improvement, and that improvement I will do my best to realize."

As you may be aware, the first Monday in December is *"Fatigue Elimination Day."* This movement against the human waste due to avoidable fatigue—initiated by Gilbreth in America many years ago, and by myself in England in 1917—means that each one of us is called upon to consider seriously at odd moments during Fatigue Day what can be done to reduce or eliminate avoidable fatigue. In 1921 attention was concentrated on avoidable *NOISE* in the shops, in order to help in the suppression of its tyranny. That there should be a standard limit of permissible noise, which, if exceeded, should be a legal offense, all will agree; but I fear we shall continue to suffer until we have influenced public opinion. There is a wide field open for genius and research in the solution of noise problems. A silent typewriter has been produced, why not a silent weaving loom? Weaving, said to be invented by Semiramis some 2,700 years ago, is one of man's oldest industries, but it was not until 1807 that steam was used to drive the power-loom and some seventy years have passed since William Dickinson gave the Blackburn Loom the form it has retained for so many years. And in recent years we have seen the birth of the automatic loom; it now remains for some young engineer to silence these noisy machines without appreciably increasing their cost. Consider seriously what can be done in your immediate surroundings to reduce or eliminate avoidable noise in street and factory so that at the end of every working day there may be less fatigue, and better ability to enjoy well earned recreation and repose.

Flu Fighters Again Mobilize

Page boys at the Savoy Hotel, London, in the daily [illegible] like a musical comedy chorus. The ex[illegible] is designed for the protection of both the staff and the [illegible] epidemic. Available vaccines are [illegible] sures must be relied upon to ward off attacks of influenza. [illegible] better prophylaxis than gargling.

The Incompetent Heart and Industrial Accident*

In Secondary Cardiac Symptoms the Priority of Disease Conditions Should Always Be Considered

By WILLIAM H. HOLMES, M.D., Chicago, Illinois

THE operation of the Workmen's Compensation Law, designed originally to protect the rights and interests of injured employees, has in not a few cases resulted in the filing of fraudulent claims for compensation on the grounds of cardiac disease alleged to be due to injury. As the provisions of the law become more generally known, the number of fraudulent claims may be expected to increase, especially during periods of industrial and economic depression. It is very important, therefore, that physicians, who are brought into such close relations with the compensation law should be alive to the necessity of insuring justice without encouraging fraud.

This article does not include a consideration of disturbances in rate, rhythm, or of functional disease, because the boundaries of our knowledge in these particular fields are constantly being extended. Our knowledge of the organic condition referred to by some as "cardiac failure" and by others as "cardiac decompensation" is more definitely settled, although here, too, the cautious weighing of evidence is necessary if false interpretation is to be avoided.

Decompensation is understood to refer to a condition of circulatory failure as a result of an insufficiency of the muscular power of the heart. Before undertaking a discussion of the cause of this condition referable to myocardial enfeeblement, it seems advisable to review briefly the physiology of the normal heart during muscular exercise, since this has a direct bearing on the question of whether decompensation can be caused by injury.

The ability of the skeletal muscles to perform work is dependent, among other things, on their supply of nutritive substances, including oxygen, and the speedy removal from them of the metabolic products formed. Failure to maintain an adequate oxygen supply results in the accumulation of acid products which tax the mechanism responsible for the maintenance of the neutrality of the blood and tissue, and gives rise to the symptoms of fatigue. The proper regulation of oxygen supply and the elimination of volatile metabolites is dependent on the extent and character of respiratory and cardiac adjustments to exercise. The respiratory response consists of a greater pulmonary ventilation, to the end that the arterial blood leaving the lungs may be as fully or almost as fully saturated with oxygen as during rest. It is accomplished by an increase in the rate and depth of breathing as a result of medullary stimulation by carbon dioxid certainly and possibly by other metabolic products.

The cardiac response to exercise consists of an increased output per beat, and per minute, to the end that the additional oxygen required and rendered available by the increased pulmonary ventilation may be transported to the contracting skeletal muscles. It is accomplished by an increase in cardiac rate and by a physiologic dilatation which apparently is limited only by the size of the pericardial sac. The rate of the blood flow throughout the body is dependent on the cardiac rate, force, output, venous return, and other circulatory adjustments that, among other things, permit the withdrawal of blood from the splanchnic area where it is not needed, to augment the amount required by the contracting muscles. Under ordinary conditions of life the normal heart uses but a small fraction of its total available energy. The balance of unused power is held in reserve to meet the unusual and extraordinary demands which accompany strenuous or prolonged physical effort. This reserve muscular power constitutes a factor of safety for use in emergency only. That this is true is indicated by the rapidity with which the heart returns to its ordinary state as soon as the need for increased power has ceased.

A Test of Physical Fitness

This fact constitutes the basis for the various physical tests for determining the functional capacity of the heart. In the British and American armies the pulse rate, rhythm, and the systolic and diastolic blood pressures were observed in the dorsal position before and after a measured amount of work consisting of hopping one hundred times on one foot. Normally this exercise produces: (1) An increase in the rate and depth of respiration; (2) an acceleration of pulse rate; (3) an increase in systolic blood pressure with a smaller increase of diastolic pressure; (4) vasomotor phenomena; (5) an increase in the intensity of cardiac tones; and, finally, (6) various subjective sensations.

After two minutes rest in the dorsal position the normal heart returns to its pre-exercise rate; rapid breathing ceases; blood pressure begins to decline; the vasomotor phenomena disappear; and the patient is no longer conscious of either respiratory or cardiac action. The application of the exercise test to various forms of cardiac disease including myocardial enfeeblement is accompanied by respiratory and circulatory distress and a slow return to the pre-exercise rate and rhythm. It may cause the production of murmurs, measurable cardiac enlargement, arhythmia, falling blood pressure, or a disturbance in the relations between systolic and diastolic pressure, persistent dyspnea, chest pain, etc., when decompensation is imminent. Decompensation of the heart begins at the time when symptoms of distress appear during ordinary effort and is complete when the cardiac muscle is unable to maintain the circulation during the rest. It may appear gradually or suddenly, but whether slowly or suddenly it is indicative of pre-existent disease when caused by ordinary effort. It is characterized by symptoms referable to the respiratory, circulatory, renal, gastro-intestinal and nervous systems. Among these symptoms may be mentioned, cough, dyspnea, spitting of blood, chronic bronchitis, anorexia, epigastric discomfort, oliguria, headache, vertigo, drowsiness, irritability, etc.

Physical examination reveals a heart enlarged transversely, with a diffuse, displaced, and feeble apex beat, frustrate beats, impaired tones, valvular murmurs, cyanosis, edema,

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ascites, albuminuria, pulsating jugular veins, enlarged pulsating tender liver, etc. Neither all the symptoms nor all the signs will be present in every case. Auricular fibrillation is one of the most constant signs.

In the reaction to exercise then we possess a simple logical and easily performed test of cardiac efficiency. The wide latitude of reaction possessed by the normal heart and the readiness with which it recuperates from fatigue leads to the present belief that fatigue alone does not cause failure of a normal heart. The diseased heart enjoys no such distinction and may show signs of decompensation following causes which appear trivial. It is the progressively increasing severity of symptoms produced by gradually decreasing amounts of physical effort, that constitutes cardiac failure. As already stated, it is a condition secondary to myocardial disease, that in nearly all cases can be traced to the effects of either infection, toxemia, mechanical defects or a combination of causes. It is, therefore, to the interests of the employer, the employee, and society at large, to have a record of the patient's history and a careful physical examination as one of the conditions of employment. The discovery of cardiac disease need not debar a man from employment but should constitute a reason for placing him in a position where his disability will not be increased by industry. Having been placed he should be given reexaminations at intervals.

Owing to the fact that serious organic disease of the heart may exist over a long period of time without the presence of striking symptoms, the physical examination of a large group of workmen under the present methods of employment will reveal some whose hearts show evidence of disease.

There will be some whose myocardium has suffered from the effects of infection, or from the toxemia of goiter. There will be some whose myocardium or heart valves are, or have been recently, the seat of an infective process with the organisms still present and viable but temporarily inactive; some whose hearts are handicapped in the discharge of their functions by healed valvular lesions; some whose myocardium, coronary vessels, or valvular orifices present evidence of luetic infection. There will be a few senile hearts and a few fatty hearts and, finally, there will be some that show evidence of arterio-capillary fibrosis with or without signs of renal disease. Such cases constitute a liability to industry, since, unless they are properly placed, the nature of their employment may serve to aggravate the cardiac disease. In a discussion of the relation of cardiac decompensation to industrial injury, one should, therefore, not lose sight of the fact that several distinct forms of asymptomatic cardiac disease may have antedated the accident. The existence of prior disease does not, however, materially affect the liability of the employer, except in certain cases where it can be demonstrated that cardiac failure was imminent in any event. Cardiac failure might be considered as imminent if with known disease, arhythmia, dyspnea, or edema had appeared and become progressively more severe over a period of days or weeks prior to the injury.

Malign Influence

The means by which industrial injury may result in heart failure: An accident may have a malign influence on the heart in many different ways. In some of these the connection is so direct and apparent that there can be little room for differences of opinion. It is hardly necessary to indicate that liability would have to be admitted for cardiac disease following direct injury of the heart muscle, valves, or pericardium, from stab wounds, the penetration of missiles, or injury by the jagged ends of fractured ribs. Where chest injury has resulted in either pulmonary, pleural or mediastinal disease followed by direct extension to the heart the liability would be equally clear. Pulmonary consolidation following injury would constitute clear liability for the subsequent appearance of cardiac disease. A powerful blow over the heart might rupture a valve or damage or rupture the cardiac muscle or disorganize the neuromuscular regulatory mechanism of rate and rhythm. If disease was already present these effects might follow an injury without there being any external evidence. If the cardiac disease is advanced the blow need not necessarily be directly over the heart. Immediate death from reflex stoppage of the heart has been observed too frequently following such trivial injury as is associated with pleural puncture to make this an impossibility. A blow over the heart might result in the loosening of vegetations which being swept into the blood stream would become emboli, giving rise to symptoms in other organs. The influence of a blow in the production of cardiac disease in a previously normal heart could only be determined by a consideration of the amount of violence applied, by the character of the symptoms and signs, and by their suddenness of onset. In other words, the influence of a blow in the production of cardiac disease can only be determined when the sequence of symptoms is considered in connection with the antecedents of a specific case.

Very frequently physical strain forms the basis of claims for compensation. Here, the strain must be of such a nature as to be considered unusual or excessive for that individual. The carrying of one hundred pounds of brick by a hod-carrier could not be considered excessive. Such exercise constitutes his means of livelihood. If he has followed this occupation for some time his circulatory system is properly adjusted to discharge its functions without undue strain. On the other hand, a similar feat performed by an individual unaccustomed to such effort would be an excessive strain and might result in permanent damage. The existence of cardiac disease predisposes to failure as the result of strain. A teamster fell from the seat of his wagon and sustained severe bruises of the face, hands, and legs. He did not have to struggle to arise, nor was it necessary for him to lift parts of the wagon or its contents from his body. He fell and was bruised and for this condition he received treatment for nine weeks. At the end of this time he returned to work and worked for two weeks. Following his return to work he complained of fatigue, shortness of breath, irregular heart action and swelling of the feet. At the time of the examination some weeks later he was intensely dyspneic, the extremities were edematous, the abdomen contained fluid, the liver was enlarged and pulsating, the heart was enlarged transversely, a systolic murmur was present at the apex, there was auricular fibrillation, albumin and casts were present in the urine. In short, the picture was one of complete cardiac failure. He claimed and received compensation on the ground that the fall had injured his heart. In this he was in error. There were no cardiac symptoms during his nine weeks of treatment. They only appeared after his return to work and showed a progressive increase in severity during two weeks. What were the true facts? He was fifty-seven years old. He had been an alcoholic. There was a history of frequent nocturnal urination for sev-

eral years past. He had always performed heavy manual labor.

Contrary to the belief of many, diseased cardiac muscle is not always benefited by rest. Much in the same manner as the tone of the skeletal muscles is kept up by exercise so the tone of the cardiac muscle is benefited by a moderate amount of daily exercise.

In the case under consideration the demands of the heart during the nine weeks in bed permitted a sufficient loss of tone, so that his return to work constituted excessive strain. A more gradual resumption of activity might have entirely avoided cardiac failure, prolonged invalidism, and expensive litigation.

Associated with Infection

Injury may be responsible for severe and permanent cardiac damage by reason of complications. A cut finger followed by a cellulitis of the arm may result in the occurrence of either mural or endocardial infection in a previously normal heart. It is not even necessary that a hematogenous invasion by virulent streptococci occur, since a low grade localized staphylococcal infection of bone or deep tissues with persistent fever and toxemia may result in myocardial degeneration.

Barringer in numerous articles expresses the opinion that cardiac failure in previously well compensated hearts, is more frequently associated with infection than with strain. Severe hemorrhage, traumatic shock, embolism of the pulmonary capillaries by droplets of fat as the result of fractures of the long bones, may all serve to render the myocardium unable to discharge its function. The rôle of mental shock, fear, worry, and other powerful emotions in the production of hyperthyroidism, or rather their rôle in bringing out the symptoms of the disease is not yet clear. If it can be shown beyond doubt that hyperthyroidism followed an injury then myocardial degeneration could be attributed to the same cause since the two conditions are usually associated. In this connection it should be mentioned that thyroid extract is available over the drug store counter without prescription. Its uses and actions are known to many lay persons through the syndicated medical articles in the daily press. The use of drugs to obtain exemption from military service has been reported from many countries. Military surgeons are constantly alert for evidence of malingering as a means of avoiding service or for the purposes of collecting government compensation. In certain industrial cases where suspicion of the genuineness of the disability is entertained the patient should be placed under observation in a hospital, preferably in seclusion.

In conclusion, I believe that it is both fair and keeping with accepted teaching to state that despite the numerous ways in which trauma might affect a heart, infection, lues, arteriosclerosis, and renal disease are the common causes of cardiac disease. Injury may act as a contributory cause of cardiac failure in the presence of known cardiac disease. A negative history has no value in drawing conclusions as to whether disease existed prior to the trauma. A man may suffer from an advanced hypertrophy of the heart due to an aortic regurgitation and yet be able to successfully carry on his work and present the outward appearance of perfect health. A positive history of repeated attacks of rheumatism, sore throats, chorea, etc., is extremely suggestive of pre-existent cardiac disease.

If the lesion be aortic, syphilis should be excluded by the proper serologic tests. Arteriosclerosis, hypertension, and chronic renal disease should be excluded before attributing cardiac disease to an accident.

If edema, cyanosis, enlargement of the liver, pulsating jugular veins, hypertrophy of the heart are present, they speak for the long standing nature of the condition. If a leukocytosis and fever exist without evidence of infection which can be attributed to the injury, they should be given due consideration in determining the cause of cardiac failure.

Patrick's Social Reconstruction

THE "Pyschology of Social Reconstruction" by G. T. W. Patrick is a criticism of current programs for extensive social reconstruction on the ground of their failure to take full account of psychological factors; it is an interpretation of such plans "in the light of recent psychological studies—particularly studies in certain forms of instinctive behavior."

The proposed reforms are political and economic, the author argues, whereas "life is determined by a great mass of inherited instincts, interests, and passions." The goal of social reconstruction should be the adaptation of the social order to the people who are to live in it. Men change slowly, while society develops rapid changes in organization, and the result is maladjustment. The proposed social reforms exaggerate the situation by abrupt efforts to adapt a new social order to man as he has existed for centuries. The citizens for the new society are lacking, declares the author, because "human beings will not serve." The proposed future is declared, for present day human beings, to be "drab and uninteresting" and devoid of romance because it is built upon a pleasure economy, whereas man has struggled up through a pain economy. Long periods of education are needed to revise the instincts of man to fit the new order.

The discussion of the psychology of work adds to the limited literature of the vast subject of instincts in industry. The brief argument in this book shatters the idea that man loves to work and that he will be happy with short hours and good pay. The practices of efficiency experts to get the interest of workers by organization fare no better, because work in which the creative instinct of man has no part becomes drudgery. The future of industry depends upon giving an opportunity for the "instinct of workmanship." Industrial partnership is therefore favored. The author gives a hopeful view by pointing out that a large part of our workers will have an opportunity for the development of the creative instinct.

The book should have a wide influence because of its simplicity, directness, and incisiveness of statement. In reading it, one is reminded of one of the sayings of Mr. Dooley—in substance that a man who would promise to teach lobsters to fly in a month would be called a lunatic and be locked up, but the man who expects that people will be made good by an election is called a reformer and remains at large.

The book errs in painting the deficiencies of social reconstruction plans too luridly. By no means do all plans so completely ignore the psychological factor. Practical social reformers have studied social behavior much more than is implied in this book. Even the politician is noted for crude, but effectual, understanding of people. However, the need is great, and an overstatement may draw attention where a precise analysis would fail.

Houghton, Mifflin Company, New York, 1920.

The Treatment of Carbon Monoxid Poisoning*

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CARBON monoxid poisoning is one of the most widely distributed and most frequent of industrial accidents. The gas is a product of incomplete combustion and is without color, odor, or taste; therefore, its presence is frequently unsuspected in many places where it exists. It is an ever present danger about blast and coke furnaces and foundries. It may be found in a building having a leaky furnace or chimney or a gas stove without flue connection, such as a tenement, tailor shop, or boarding house. Hospitals receive a great number of victims of poisoning, whether by accident or in an attempt at suicide, from artificial illuminating gas. People may be affected by leaks wherever water gas is formed or used. The exhaust gases of gasoline automobiles contain from 4 to 12 per cent of carbon monoxid, and in closed garages men are not infrequently found dead beside a running motor. A similar danger may arise from gasoline engines in launches. The gas is formed also in stoker rooms, in gun turrets on battleships, in petroleum refineries, and in the Lablanc soda process in cement and brick plants. In underground work carbon monoxid may appear as the result of shot firing, mine explosions, or mine fires, or in tunnels from an automobile exhaust or from coal or oil burning locomotives.

The Unsatisfied Atom

Carbon monoxid exerts its extremely dangerous action on the body by displacing oxygen from its combination with hemoglobin. Hemoglobin is the coloring matter of the blood which normally absorbs oxygen from the air in the lungs and delivers it to the different tissues of the body, which need it to do their work. The affinity of carbon monoxid for hemoglobin is about three hundred times that of oxygen. Because of this, even when only a small amount of the poisonous gas is present in the air breathed into the lungs, much of the hemoglobin is locked up in combination with carbon monoxid and so cannot keep up its usual work of carrying oxygen to the tissues. These, due to lack of oxygen, cannot do their work properly. If they are smothered long enough, degeneration sets in, and the damage sometimes cannot be repaired, even though the patient may not lose his life. It is possible that carbon monoxid has a specific poisonous action on some tissues of the body, especially those of the nervous system, but there is little evidence in favor of this and much against it. Haggard and Henderson found that there was no change in the rate of growth of chick brain tissue, even when it was exposed to an atmosphere containing over 70 per cent of carbon monoxid, and it has been shown many times that animals without red blood (hemoglobin) live in atmospheres containing high concentrations without apparent harmful effects. Recently this was demonstrated at the Pittsburgh experiment station when some roaches were kept for several days in an atmosphere of more than 60 per cent carbon monoxid and 20 per cent oxygen without lessening their activities.

The Suffocation Syndrome

The victim of acute carbon monoxid poisoning usually experiences the following symptoms: Yawning, sleepiness, tiredness, and a tight-stretched-skin feeling across the forehead; a frontal headache, dull and intermittent at first, later more severe and continuous; this headache is replaced or masked by a typical one at the base and back of the skull, which causes the sufferer to hold his head as far back as possible in an effort to obtain relief; dizziness, nausea (feeling of sickness), and lassitude also occur. The pulse is at first normal, but later becomes full and rapid, the skin flushed, the respiration becomes more rapid with exposure to the gas and, later, irregular. If the exposure is sufficiently long or the concentration sufficiently great, confusion and unconsciousness develop. As the victim recovers, he remains weak for some time; this is especially true of the muscles of his legs. The headache, sometimes very severe, confusion, and partial loss of memory accompany recovery but pass off in time. The nausea may be sufficient to produce vomiting. All the symptoms are accentuated by exercise, eating, and stimulants. When a man is overcome by large concentrations, the symptoms follow each other rapidly and he may quickly fall unconscious. The rate at which a man is overcome and the sequence in which the symptoms appear depend on several factors: the concentration of the gas, the extent to which he is exerting himself, the state of his health and individual predisposition, and the temperature, humidity, and air movement to which he is exposed. Exercise, high temperature, and great humidity, with no air movement, tend to increase respiration and heart rate and, consequently, result in more rapid absorption of carbon monoxid.

In a chronic form, carbon monoxid poisoning produces a tired feeling, headaches, nausea, palpitation of the heart, sleeplessness, and sometimes mental dullness. Some people develop a "tolerance" for carbon monoxid and may after a while be able to "stand" more of the gas than when first exposed to it. In the treatment of the chronic form of poisoning the most important factor is the removal of the patient from further exposure to carbon monoxid, and thorough rest. Though there are probably many more cases of the chronic form than are usually recognized, it is in the treatment of the acute form that interest is generally centered.

The first and most important thing in caring for a case of acute carbon monoxid poisoning is to get the poison out of the blood. Every moment that it shuts the oxygen out of the hemoglobin adds to the chances of failure of respiration and the heart. Every minute that the tissues are supplied with only a part of the oxygen they need increases the danger of their degeneration and permanent damage. Both to save life itself and to prevent ill health in the future, it is of vital importance to eliminate carbon monoxid from the blood as rapidly as possible.

Oxygen takes the place of carbon monoxid in the blood when the proportion of oxygen in the lungs is overwhelmingly greater. The speed of the change depends on the relative amounts of the two gases in the lungs and on the depth and frequency of breathing. The first step is to get the victim away from the atmosphere of carbon monoxid while he is breathing; the next is to supply him with oxygen. This may be done by getting the patient into fresh air, but only one-fifth of air is oxygen. If a tank of pure oxygen is available, it is far better to use it as the action is much

*By permission of the Director of the Bureau of Mines.

To use the Bureau of Mines oxygen inhalator (in conjunction with Schaefer manual method of inducing respiration): Open valve of oxygen bottle, and, as soon as oxygen reservoir is fully inflated, adjust face mask over patient's nose and mouth, securing same in place by means of head cap. Then continue artificial respiration, which should be interrupted no longer than absolutely necessary.[1] A fully charged bottle (150 atm.) will last thirty-five minutes.

faster and the after-effects, especially the headaches, are much less severe and not so prolonged. The oxygen should, if possible, be given through an inhalator made similar to an anesthetic mask or Tissot Army face mask, which can be fastened over the patient's mouth, nose, or entire face. If an inhalator is not at hand, a physician may give oxygen through a nasal catheter. In the absence of any of these accessories it can be sprayed directly from the tank about the patient's face. It should be started as soon as he is removed from the carbon monoxid or before, if possible, and should be kept up for at least twenty minutes.

It may be that when the victim is found his breathing has stopped, or is very weak and irregular. In this case one of the rescuers should begin at once artificial respiration, by the Schaefer method.

Place the person[1] on his abdomen; remove from his mouth all foreign bodies, such as false teeth, tobacco, and gum; see that the tongue is forward; turn his head to one side and rest it on his forearm, so that the mouth and nose will not come in contact with the ground, and extend the other arm forward. If the person is thin, prepare a pad of folded clothing, or blankets and place it under the lower part of his chest. Do not make this pad too thick. Do not wait to loosen the victim's clothing but begin artificial respiration without delay. An assistant may remove all tight clothing from the victim's neck, chest, and waist, and place blankets, hot water bottles, safety lamps, or hot bricks, well wrapped in paper or cloth, about the person.

Kneel, straddling the person's thighs and facing his head; the palms of the hands are placed over the short ribs with the thumbs parallel with the spine about two inches apart and the fingers spread out as much as possible, the ends of the little fingers reaching just below the last rib; with arms held straight, swing forward slowly so that the weight of the body is gradually brought to bear on the person. This operation, which should take about two seconds, must not be violent, lest the internal organs be injured. The lower part of the chest and also the abdomen are thus compressed and air is forced out of the lungs. Now, immediately swing back slowly to remove the pressure, but leave the hands in place. Through their elasticity the patient's chest walls expand and his lungs are thus supplied with fresh air. After two seconds swing forward again and repeat deliberately about fifteen times a minute.

Continue if necessary for at least three hours without interruption, or until natural breathing has been restored or a physician has arrived. Even after natural breathing begins, carefully watch that it continues. If it stops, start artificial respiration again.

While the administration of oxygen is by far the most important factor in the treatment and cannot be overemphasized, other things should be done to help the patient. He should be kept quiet and lying flat, to help his weakened heart. As he gets better, he should never be allowed to walk about or in any way exert himself, for there is danger of heart failure. Heat from safety lamps, hot water bottles, or warm bricks, rubbing the arms and legs, and keeping the patient well covered with blankets all help the circulation, and aid in tiding the body over a period of low vitality. The safety lamps, hot bricks, etc., should be well wrapped in cloth or paper as a precaution against burning the patient. Other stimulants, such as hypodermics of caffein-sodium benzoate or camphor in oil, may be used only by a doctor, and after he has considered the possibility of over-stimulation and consequent collapse. The patient should be kept in bed for a day at least. Later he should be treated as a convalescent, being given plenty of time to rest and recuperate. Just how long this should be depends on the severity of his poisoning and should be decided by his physician.

1. Manual of First-Aid Instruction for Miners, Bureau of Mines, 1921

Summary of Treatment

(1) Administer oxygen as quickly as possible, and in as pure a form as is obtainable, preferably from a cylinder of oxygen through an inhalator mask.

(2) Remove from atmosphere containing carbon monoxid.

(3) If breathing is feeble, at once start artificial respiration by the prone method.

(4) Keep the victim flat, quiet, and warm.

(5) Afterward give plenty of rest.

Sanitation of Water Supply

Modern methods of water supply and purification are the subjects of a very pertinent article by M. F. Sanborn, in a recent issue of The *American City*. The requirements of water, the uses to which it is put, and its purity for domestic uses are discussed by the writer. Some industries need water with certain characteristics, and must employ special treatment to obtain it. The water used for other public purposes than drinking does not need to be of such high standards.

Water is purified or partially purified by plain sedimentation, chemical precipitation, aëration, slow filtration, disinfection, water softening and treatment with copper sulphate to kill algae, diatoms, etc.

Sedimentation with the aid of chemicals is used with turbid and colored waters, especially as a preliminary treatment for rapid sand filtration, in which case the preliminary sedimentation extends somewhat the interval of time between filter cleanings.

Aëration of some waters is of benefit in increasing dissolved oxygen and reducing carbonic gas. It also removes to a large degree the odors caused by stagnation of that water which is drawn from below the zone of rapid change of temperature.

Interest and Distinction in Utilitarian Buildings*

The Gold Medal Group for Industrial Design at the Recent National Architectural Exhibition

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PUBLIC interest at the completion of the construction of an important group of buildings usually centers around the answers to such questions as: What is their construction and how long did it take to erect them? Why are the buildings arranged as they are? Why do they look as they do? How is the mail order business of Sears, Roebuck & Co. conducted in these buildings, and how is it possible to operate economically and successfully over such vast areas of floor space?

The Philadelphia store is the latest of several erected by Sears, Roebuck & Co., at important distributing centers. Philadelphia was selected as the most advantageous site for prompt and economical delivery of goods to customers in the eastern territory, and for the additional reason of relieving the Chicago store of the congestion arising from increased business.

Basis of Problem

The principal requirements which formed the basis of the problem to be solved were:

(1) Buildings to accommodate at first an annual business of fifty million dollars, with complete provisions for greatly increasing this capacity in the future.

(2) The proper location of the buildings on the site, consisting of forty acres with proper railroad connections.

(3) The adoption of the most economical fireproof construction and the determination of a plan, arrangement, and design for the buildings best suited for the most direct and efficient handling of goods.

(4) A simple inexpensive treatment of the exterior of the buildings that would meet with the approval of the owners and which would be appropriate and attractive enough, in the opinion of the Philadelphia Art Commission, to occupy this site on one of the city's most important boulevards.

(5) Proper provisions for the health, comfort, and welfare of the employees.

(6) And, finally, the very important requirement of including in the new store all of those features and improvements that had proved most successful in the old stores and the omission of all those which were unsuccessful or which had become obsolete.

The plant consists of the merchandise building with a ground area of 119,000 square feet, basement, and nine stories, in which all the goods are handled, an office building of 31,650 square feet ground area, six stories and basement, and a power plant of 19,270 square feet ground area. In addition to this there are other minor buildings of no special interest.

The frontage of the buildings on the boulevard is 780 linear feet, and the aggregate floor area of all stories in the main building is 1,592,500 square feet, and their cubical contents 22,088,101 cubic feet.

The foundations consist of 529 concrete caissons down to rock, supporting 4,766 concrete columns in the different stories, making a total length if placed end to end of thirteen miles. There were nine million brick used, 138 thousand barrels of cement and eight and one-half million pounds of reinforcing steel.

The type of construction is strictly fireproof throughout. The cantilever flat slab system of reinforced concrete was employed in the floors and columns; the walls were of common brick, faced with dark red face brick and trimmed with gray terra cotta

*At the National Architectural Exhibition in Washington, D. C., last May, held by the American Institute of Architects in connection with its annual convention, the gold medal for industrial design was awarded to George C. Nimmons & Co. on the strength of the design for the Eastern Store of Sears, Roebuck & Co. The distinctive features are embodied in the structural units, rather than to applied ornament. We are publishing the description through the courtesy of The Architectural Record.

General view from Roosevelt Boulevard. The buttress construction of the Gothic is here applied to modern industrial use.

which has blue backgrounds where ornaments occur. Wooden window frames with sliding sash were installed, except where fireproof ones were required, because of the ease with which they can be opened for ventilation and cleaning, and their greater freedom from cracks and openings which admit dust and cold draughts. The columns are spaced twenty feet apart each way and carry a live load of two hundred pounds per square foot on the floors of the merchandise building, and a lighter load in the office building. This uniform spacing of columns, both ways, is economical in construction and also makes it possible to change fixtures and equipment in the buildings from any pair of columns to any other pair without cutting or alteration. . . .

The mail order business is merchandising on a large scale; sales are made exclusively through the medium of catalogues circulated among the customers, who order from these catalogues by mail.

To the farmer or dweller in the small town or village the business offers advantages and conveniences similar to those offered by the modern department store to the residents of large cities. About ninety per cent of the orders can be delivered to his door by parcel post.

The business of one of these plants consists of receiving the letter orders from customers, which come every day by the truck load, gathered up from the different depots in mail sacks. The letters are opened usually by machinery by the hundred. They are then read and indexed, and tickets are made out for all goods to be shipped; these tickets are sent by pneumatic tubes to the proper departments. On the tickets so made out, are indicated the departments which handle those goods, the route and manner of their shipment and further, this very significant thing—the exact time at which each article is to arrive in the shipping room. This important feature in the handling of goods, prevents unnecessary congestion and results in distributing the handling of orders evenly over the entire period of the working day. The operation of the plant therefore becomes a uniform, steady activity which brings about maximum efficiency while at the same time preventing spasmodic speeding up.

The transmitting of orders from the departments to the shipping room is largely mechanical. If it were not, the mail order business could not be conducted in these large buildings over such vast areas of space without causing great delay in shipment and largely increased cost in handling.

The mechanical means employed for filling orders of customers, in a general way are as follows: When a ticket calling for goods to be shipped arrives through the pneumatic tubes in any department, the goods are taken out of stock and delivered to the nearest spiral chute. These goods, except the very large ones slide round and round in their descent in these spiral chutes until they are discharged at the bottom onto the conveyor belts, which take them to the sorting aisles. They are sorted several times in a very simple way which results finally in their arriving at the particular rack where goods for the customer are assembled, as they arrive from the different departments of the store.

When all of the goods for any one of the customers have arrived in the various receiving racks made for that purpose, they are gathered together and packed in a bundle or box. The Post Office Department maintains a post office in the plant which furnishes canceled stamps to be affixed to the packages on the spot, thereby obviating the necessity of going through the city post office at this end of the shipment. Large or heavy articles go by freight or express.

This system of handling goods by means of conveyors, chutes, etc., was the chief factor which had to be taken into account in planning the merchandise building; in studying the arrangement and plan of the entire group of buildings, this building was the most important one and its requirements had first to be provided.

After considering the different ways in which the four big rooms of this building could be arranged it was decided to put them together in a "U" shape plan, as this gave the shipping room the most central location for direct action of the conveyor belts, also the best lighting for the rooms and the most advantageous arrangement for future extensions.

The tower that dominates the group is not for its ornamental effect at all, but to meet the very essential requirement of providing a place for the sprinkler tanks.

The office building was placed on the right so as to give the clerical employees the view and good light of the boulevard; besides, this situation is a convenient present location and will also be a central one when additions to the plant are completed.

One feature of particular importance in the plan of this building was the placing of elevators, stairs, toilets, etc., in the rear of the center,

so as to have uninterrupted light space for office use for the entire remaining area of the building. This is a distinct advantage, because the office space may then be divided or the whole space may be used as a single unit, as traveling belts and conveyors may extend through the entire length without interruption.

The power house provides heat and light, power for all mechanical ventilation, elevators, pumps and the pneumatic tube system, refrigeration for the drinking water circulated through the store, and for the kitchen cold storage. Space was provided in the building for the additional equipment needed for future additions. At present there are installed six 500-horsepower return tube boilers with complete mechanical stokers and mechanical means of handling coal and ashes. All discarded boxes and wooden crates are ground up in what is called the "Hog Machine Room," adjoining the basement of the merchandise building and blown back through a pipe to the boilers and consumed without further handling, as fuel.

In the engine room there are now installed one 125, one 350, and one 750 kilowatt generators, and one 1,500 kilowatt turbine driven generator. All of the buildings have mechanical ventilation by which washed fresh air is provided for the different parts of the buildings according to the number of people occupying them. Each toilet fixture is also individually ventilated. All pipes, wires and conduits are run underground from the power house in a system of underground tunnels to the merchandise and office buildings.

The remaining question proposed for an answer was: Why do the buildings look as they do? The feature which dominates the group is the tower, and that should be accounted for first. The reason for this tower is not at all, in the first instance, for its ornamental effect, but for the very essential requirement of providing a place for the sprinkler tanks. A low rate of insurance can be secured only when a building is sprinkled and in this case the lowest rate given for this class of building was granted by the insurance authorities, all possible safeguards against fire having been provided.

Although the insurance underwriters do not require the water tanks to be enclosed like these in this tower, they do require that they shall contain a certain amount of water, be placed on a certain height above the buildings, and be protected against freezing. In this case there were required four nine thousand-gallon pressure tanks and one eighty thousand-gallon gravity tank. Inasmuch as these tanks, with their enormous weight of water, had to be supported by heavy, fireproof construction, the additional expense of enclosing their supports in four walls where they extended above the roof, and thereby making a fourteen story tower at the main entrance, was relatively small compared with the benefits secured in increased office space, saving in maintenance of the tanks, and in the appearance of the whole group of buildings.

The women's rest room of the Eastern Store of Sears, Roebuck & Co., Philadelphia. The welfare of the employes is given the most serious attention. The Chicago store of this company has reported a decrease of 50 per cent in labor turnover [illegible] to be attributed to personal service work among their employees.

The dominating tower has a very essential function to perform besides being a clock tower and an ornamental feature to the façade. Had these tanks been left exposed above the buildings, as they generally are, they would have been so prominent and so ugly in the long distance views from the Boulevard that they would have seriously damaged the fine appearance of the whole group of buildings.

The next most noticeable feature of the exterior is that the great wall surfaces are broken by pilasters which appear like buttresses between the windows. The reason for their presence is that it was desirable to keep the inside of the walls as free as possible from large projections of columns or piers, so as not to interfere with desks, benches, and equipment which were to be placed next to the windows. The columns, therefore, which form the skeleton structure of the outside walls were made to project on the outside of the walls instead of the inside. As these columns grow smaller as they extend upward the natural form to give them was that of a buttress.

Old Art in New Design

If one is not trying to invent a new style of architecture, the obvious thing to do at this stage of the design is to select that style which seems best suited for expressing the structure. As there was no reason structurally or otherwise for a large cornice or for carrying through strongly marked horizontal features and as the walls would be much more economically built by terminating them with a simple coping than with a cornice, the choice of a style naturally fell to the Gothic. While they had no industrial building such as big mail order houses in the Middle Ages, and while reinforced concrete was never even heard of, their buttress construction is correctly expressive of the construction of these buildings, the use of their wall copings are just as appropriate and their pointed arches just as applicable as round ones. This style of the Middle Ages was therefore employed and the result is Gothic architecture applied to a group of modern industrial buildings, or "Industrial Gothic," as some have applied the term.

In applying this style of architecture, no effort was made to find ready made features in old Gothic buildings and plaster them on wherever they would stick. On the contrary, an effort was made to mold the important parts of the buildings into shapes harmonious with this style, and to flavor the detail with a distinct feeling of modernity.

Terra cotta window sills and lintels

(which had to be there for any kind of design), are employed in such a manner as to divide the building into pleasing proportions. Gothic tracery enriched with color is utilized in the terra cotta spandrels and entrance panels in such a way as to give interesting prominence to these features. The colors employed were gray for the tracery, blue for its openings or backgrounds, and dark grayish red for the brick.

The Human Interest

In conclusion, a brief description is given of the organization which operates this plant and the provisions for welfare work for the employees.

As soon as a decision was made to build this plant, work was started on selecting and building up an organization to run it. Shortly before the buildings were completed, about two hundred experienced men and women arrived from the other plants, mostly from the main plant at Chicago. These formed the nucleus of the new organization.

New employees were taken on as fast as they could be trained and assigned to their positions. The plant started to ship goods October 18, 1920, with about two thousand employees, a number materially increased by this date.

The welfare of the employees has always been given the most careful consideration by this firm at all of their plants. In an article in the *Architectural Record* for June, 1919, on the subject of "Employees' Welfare Work," a description was given of a decrease of 50 per cent in labor turnover at the Chicago store of Sears, Roebuck & Co., attributed to the personal service work done there for their employees.

At the Philadelphia store the same policy has been pursued. The offices and working spaces are all well lighted and ventilated, and are in every case clean, attractive and sanitary places, well adapted for the work to be done. In the office building there is a restaurant and cafeteria supplied by a kitchen, up-to-date in all its equipment, where lunches of clean, wholesome food are served at cost price. There are a smoking room for men and a rest room for women, and also a piano and phonographs for entertainment and dancing.

On the first floor there is a completely equipped doctor's office with physicians and nurses in charge, which takes care not only of accidents and illness, but also carries on a system of examination and care of employees that endeavors to prevent sickness.

When the weather is favorable, employees are encouraged to seek the outdoors for their noon hour, where an athletic field is provided for outdoor sports, and where there are also pleasant walks among the flowers, shrubs and trees, with which the grounds are landscaped.

Standards in Industrial Ventilation

THE National Safety Council has prepared a statement of the general requirements of industrial ventilation, together with such arguments for its maintenance as will appeal to employers and to the man on the job and such instructions as will serve to direct measures for the achievement of satisfactory air conditions. Six simple measures are suggested in order to get good ventilation in the workshop: (1) Keep the temperature right, that is, from 60 to 68 degrees F. (2) Maintain the proper relation of humidity to temperature. (3) Remove gases, fumes, and dusts at their source. (4) When dependence is placed upon window ventilation, all windows are to be opened slightly. (5) Prevent drafts at windows by the proper placing of window shields or deflectors. (6) Open all windows and doors for a short time at night, on Sundays, and perhaps at noon.

Necessity for Ventilation

Ventilation is accomplished by stirring up or replacing the air in an enclosed space. When a space is first enclosed, the confined air is as healthful as outside air. Soon, however, conditions may render the confined air unhealthful. Deterioration in such air includes: (1) An increase of carbon dioxid; (2) a decrease of oxygen—not harmful; (3) an increase or decrease of moisture; (4) an increase in temperature; (5) the addition of objectionable dust, fumes, or vapors; (6) the addition of bacteria; (7) the addition of odors; (8) the stagnation of air surrounding the bodies of persons. These changes are in turn caused by artificial illumination by means of open flames, etc., by manufacturing processes, and by the presence of human beings.

Increase in Temperature

Excessive heat, although it does not materially affect the chemical properties of the air, if maintained for too long a time, causes fatigue, lowers the vitality, and makes workers more susceptible to sickness and disease. It also lessens the general inclination to work. An investigation conducted by the New York State Ventilation Commission showed that a temperature of 75 degrees F. reduced production as much as 17 per cent; while 85 degrees F. caused a 37 per cent reduction. Generally speaking, the following are the most healthful temperatures for workrooms: 60 degrees to 64 degrees F. where the employees are doing work that requires strenuous physical exertion; 64 degrees to 66 degrees where there is an average amount of physical exertion; 66 to 68 degrees where the work is comparatively light; it is advisable never to have the temperature exceed 70 degrees. Temperature in this country is usually measured by the ordinary Fahrenheit thermometer; special thermographs may be used for automatically recording the temperature of rooms.

Changes in Humidity

The air in a plant or an office may be at exactly the proper temperature and yet be quite uncomfortable because it is too dry or too moist. If outside air at winter temperature is heated to room temperature, and if no moisture is added, it feels uncomfortably dry and cold due to the fact that too little moisture in the air causes an excessive and unnatural evaporation of moisture from the skin. The temperature of the skin is therefore lowered and under such conditions one feels several degrees cooler than the temperature indicated by the thermometer. A person living or working in a room at 68 degrees temperature often feels cold and thinks the temperature should be raised; whereas the air really needs not more heat, but more moisture.

To overcome this, people in steam-heated buildings often put a small cup or pan full of water on the radiator, which may evaporate a pint of water per day. This is an effort in the right direction, but it is pitifully inadequate. As a matter of fact, when ordinary winter air at 20 degrees is heated to 68 degrees, it is necessary to evaporate approximately 522 quarts of water each day for every one hundred thousand cubic feet of air space that is occupied eight hours a day. One large company has reported to the National Safety Council that an arrangement for introducing steam directly into the room is the only practical device which will supply suf-

ficient moisture to the air. Air washers, used in connection with the plenum system of ventilation, can also be regulated to humidify the air.

The amount of moisture in the air is generally measured in terms of "relative humidity." For each degree of temperature, there is a certain maximum amount of moisture that can be contained in a cubic foot of air. The hotter the air, the more moisture it will contain. The ratio between the amount of moisture actually present in a cubic foot of air, and the maximum amount which can be contained at that temperature is called the relative humidity. There is a certain range of relative humidity for each degree of temperature which is just right for comfort.

Presence of bacteria in the air is another untoward condition. Bacteria cause sickness and disease and every precaution should be taken to avoid their presence in the air. The number and variety of bacteria will need to be determined by standard methods of air analysis and such measures as may be necessary employed to control them.

Addition of Odors

Odors in themselves may be quite harmless but may be of great importance as an index of air contamination. Perfectly harmless odors, however, may be so disagreeable that it is inadvisable for persons to continue work where they are present. Deodorants are often used, but it should be remembered that they merely mask offensive odors and should seldom be used alone. It is generally advisable to use disinfectants which will destroy the bacteria which may be responsible for the disagreeable odors, or to provide proper ventilation for their removal. The determination of odors depends almost entirely upon the keenness of smell of the investigator.

Air Becomes Stagnant

When a person remains quite still for some length of time in a room where the air is not in motion, a thin film of impure air forms about his body and keeps from him the purer air that fills the rest of the room. This can be prevented by stirring up the air with a local fan or by using some other method of ventilation.

Ventilation can be secured through: (1) Spontaneous ventilation; (2) windows; (3) doors and transoms; (4) elevator shafts; (5) stairwells and courts; (6) special openings; (7) cowls and roof ventilators; (8) special ventilation ducts; (9) vacuum ventilation; (10) plenum ventilation; or through (11) combined methods. Not all of these methods, however, are equally effectual, and great care must be exercised in selecting a method for any specific condition. Expert advice may be necessary in properly selecting, installing, and operating a ventilation system.

Means of Ventilation

By means of diffusion and because of wind, a certain amount of air is able to enter a room through the pores in building materials and through the cracks and crevices at doors, window frames, and other places in the walls, floors, and roof. This is especially noticeably in buildings of flimsy construction but spontaneous ventilation can hardly be relied upon to give complete satisfaction in modern office or factory buildings.

Many factories depend more upon open windows for their ventilation than upon any other device. Windows pivoted at the center are considered better for this purpose than the ordinary type of vertically or horizontally sliding windows, for they permit the entire space to be opened, while the latter type opens up only half of the window space. They also take greater advantage of any wind that may be stirring and can be used to control the force and direction of the incoming air.

One of the chief difficulties in window ventilation is encountered in the effort to avoid drafts. This trouble may be overcome in part by installing a medium grade of light colored muslin in place of the glass in the lower pane of an ordinary window or in a frame about twelve inches wide inserted below the lower sash. If this muslin is renewed at frequent intervals it will permit the entrance of fresh air and will not materially decrease the light. Drafts may also be avoided to some extent by placing a deflector vertically or at an angle on the lower sill and another deflector at the top of the upper sash. Window ventilation is most likely to be satisfactory if *ALL* windows are open a little at both top and bottom; they should be opened slightly on the side from which the wind is blowing, and wider on the other sides.

Windows as ventilators are sometimes not entirely satisfactory, for their success depends largely upon the men who regulate their opening and closing. Then, too, in summer, when the temperature of the inside and outside air is nearly equal, little or no movement of air through the window obtains unless there is some wind. In winter, most workers do not want the windows open because they allow the entrance of air that is too cold. This latter objection may be overcome by installing long radiators directly under the window. In some installations metal ducts lead the incoming air through the radiators.

Doors help to change the air in work rooms, depending upon how often they are opened and closed and where they lead. Transoms installed over doors also assist in introducing fresh air into places where it is needed.

Elevator shafts that are open at each floor often play an important part in ventilating certain rooms or buildings. A great amount of air is displayed by the rapid ascent and decent of an elevator, and it may be advisable to provide an opening to the outside air at both the top and bottom of the shaft, though there may be an objection to such an arrangement because an open elevator shaft in case of fire may act as a chimney and spread the flames. Automatic fire doors, however, installed at all openings in the shaft may counteract this objection.

Stairwells and courts, if open to the outside air at the top and bottom, assist in securing proper ventilation. They are, however, subject to the same objections as are open elevator shafts, and automatic fire-door protection at all openings is advisable. It has been found that a suction fan installed at the top of a stairwell is effective in drawing air into rooms which open into the stairwell. When such installations are made, means should be provided for emergency or automatic shut down of the fan in case of fire.

In some rooms ventilation is secured by providing openings for this special purpose. Usually the outlet is at the top of the room; the best position for inlets is about five feet high; or, if the air is warmed, they may be placed just above the floor.

If there are openings in the roof for ventilation purposes, special precautions must be taken to prevent the entrance of rain. One way to do this is to install weatherproof hoods. Various types of hoods, sometimes called cowls, roof ventilators, etc., are on the market, and for some of these devices, the manufacturers claim additional advantages. Some ventilators are open on all sides, while others controlled by the wind, discharge air only in the direction in which the wind is blowing. One type has a gravity damper which can be operated manually, or in case of fire it will be closed automatically by the melting of a fusible link.

In some factories it is advisable to install special ducts, tubes, flues, or chimneys to carry off the air, fumes, gases, or dusts. The air can be moved through these ducts forcibly by the action of fans. If the air is heated purposely, or in the manufacturing process, it may rise through the ducts without the action of a fan. Some manufacturers place a small steam coil or an open flame in the duct to assist the movement of air; others liberate a small stream of compressed air or steam in the duct in the direction in which the air is to be moved. Some types of cowls or roof ventilators are so designed that with wind blowing through or around them, there is a certain amount of suction created in the ducts to which they are connected.

The Function of Fans

Many people think that the only function of an office or desk fan is to help keep cool the occupants of the room where the fan is operating. Fans, however, perform in addition the important function of stirring up the air and preventing stagnant areas in occupied rooms where there are liable to be heat and moisture accumulation. Merely to keep the air stirred up is one form of ventilation. This method will not remove impurities from vitiated air, nor will it supply pure air but power driven fans placed in the open room increase very materially the comfort of the workers.

The vacuum system of ventilation provides for drawing (aspirating or exhausting) the air from a room by means of a fan. No vacuum is actually formed, however, for air enters the room through the windows, doors, and other openings.

General Vacuum System

There are two types of vacuum ventilation: the general and the local. The former provides for the placing of a fan at a window or at some other opening in the wall and blowing the air from the room directly to the outside of the building without using any ducts or tubes. This method involves low initial cost and comparatively low cost of maintenance and may be especially satisfactory in laundries, foundries, and other places where there is a great amount of heat and where large quantities of steam, gas, or fumes are present.

The local system of vacuum ventilation—often called exhaust ventilation—requires the installation of hoods for collecting the air, gas, fumes, or dust, to be removed, a fan, and metal tubes or ducts for conveying this air to the outside atmosphere or to come properly provided place for disposal. If properly designed and operated, this system can be installed to remove objectionable gas, fumes, or dust at the exact point of origin.

Plenum Ventilation

With the plenum system of ventilation, air is driven or propelled into the room by fans. This method does not remove bad air from the room, but dilutes and mixes it so thoroughly with fresh air from the outside that under normal conditions the results from a ventilation point of view are quite satisfactory.

Fans for plenum ventilation may be placed at windows or at other openings in the wall so as to drive fresh air directly into the room, or one large fan may be installed at a remote point and blow fresh air through ducts into a number of rooms. The latter type of installation, though involving a higher initial cost and greater cost of maintenance, has many advantages that cannot be secured in other types of ventilating systems. It not only permits of exact measurement and regulation of the quantity of air admitted, but also makes it possible to change its quality by properly washing, humidifying, heating, or cooling the air before it is distributed.

Incoming air can be cleaned either by filtering or by washing. Filtering is usually done through cloth which should be cleaned at frequent intervals so it will not become clogged and prevent the passage of air through it.

The washing of air is usually more satisfactory than filtering and can be accomplished by passing it horizontally through a closed chamber into which water enters in the form of a spray or water curtain. The water first removes all suspended particles of dirt from the air, after which it may be strained through a fine metal screen and used again. It is surprising to see the amount of dirt that is collected by water after washing a large volume of air; it has the appearance of sewage and is like it in composition.

In many systems, the air washer is used automatically or manually to regulate the humidity of the air that is used for ventilation purposes. The excess water carried from the washer by the air is removed by passing the air over eliminator plates just as it is coming from the washer, and humidification may be provided by heating the air or the water before they enter the washer. The hotter the air or the water, the more water vapor the air will hold; therefore, by regulating the heat of the air or the water, any desired degree of humidity can be secured. Such control is necessary and is possible only by special systems.

It is possible with the plenum system of ventilation to centralize the heating apparatus and thus do away with many of the radiators and other equipment that are necessary with most other heating systems. A large heater may be installed so as to heat the air as it leaves the washer just before entering the fan. If the heater is arranged in sections, steam may be admitted to as many or as few sections as desired, making possible an absolute automatic or manual temperature control. The temperature can also be controlled by automatically or manually operating an air bypass under or around the heating compartment. Heaters should be so designed that the greatest possible radiating area will be provided consistent with a uniform and maximum velocity of air. Heater manufacturers have developed tables showing heater sizes which depend upon the number of cubic feet of air passing through the heater per minute, and whether low or high pressure steam is used.

In hot weather when it is unnecessary to heat the incoming air, the action of the air washer serves to cool the air to some extent. Further cooling is possible by removing the heating coils and substituting refrigerating coils. This method, however, is very expensive and is seldom employed. A much cheaper way to cool the air used in ventilating is to cool with refrigerating coils the water that is used in the air washer. This latter method is used frequently in banks, theaters, and hospitals.

Combined Methods Used

There are certain advantages and disadvantages connected with all systems for ventilating and it is quite generally agreed that a combination of two or more methods gives the best results. As a general rule, air should not be removed from a room without providing for the entrance of an equal quantity of fresh air. One combination that is very popular is that of the local vacuum and plenum systems. Air can be cleaned, moistened or dried, heated or cooled, and distributed to the points where it is needed the most, and provision can be made to remove impure air from the exact points of origin.

One important point that is frequently ignored, is that no matter how good a ventilating system is installed, it is often desirable to open all windows and doors at night, on Sundays, and perhaps at noon, to secure as complete a change of air as possible.

Industry and Preventive Medicine

By Our London Correspondent

THE importance of industrial medical service to the community has not heretofore been appreciated. Previously the public has come into contact with the medical profession only in case of illness. Questions affecting the maintenance of health were impersonal and for the most part were left to public services concerned with the water supply, drainage, etc. The personal note has been sounded in relation to maternity and infant welfare, school medical service, and, more recently, in venereal clinics, but, generally speaking, means had to be found for bringing preventive medicine into direct contact with the adult. For this purpose, said Dr. Edgar Leight Collis, professor of preventive medicine, University of Wales, before a sectional meeting of the British Medical Association recently held in London, industry, which gathered the adults of the community together, has provided the means.

The points, were, whether the community would benefit if industry shouldered the responsibility and whether industry itself would benefit. The benefits of both were closely interlocked. Regarding the health of the industrial population, Army recruiting data showed that only 36 per cent of the male adults were classed Grade 1. The miner and agriculturist provided higher proportions than any other industrial groups. The peculiarities of industrial disease were important in drawing attention to the influence of occupation upon health. Industrial medicine was recognized to be directly aimed at preventing disease and maintaining health. The state was undertaking to bring up to adolescence healthy individuals. Employees must in turn maintain that health.

The state strove to instil the principle of health up to adolescent life. The youth passed into some occupation and found no attention paid to health and its maintenance. There were immense possibilities in industry. A standard set up by the all admired capitalist who ruled industry would spread from the factory to the home. But today the reverse holds good. A long over-due duty was owed to the community by industry. The drift of workmen from one place to another was a heavy economic burden, various calculations placed this turnover in some cases at 400 per cent, an outlay which had been shown to fall to 30 per cent, where medical supervision of entrants and hygienic conditions existed. Erring in calculation on the safe side, seventy million pounds could be saved a year by adopting these conditions. Much was lost by lost time, either by certified sickness or the conditions of lowered health proceeding sickness. Sixty millions might be obtained by medical supervision in industry. Convalescent workers anxious lest their places should be filled, had their recovery delayed, or had another break-down by commencing work too soon. Convalescence could be expedited both mentally and physically by graduated activity of an interesting nature, and the best form of interest was remuneration for work done which was today precisely the form of activity prohibited for the industrial convalescent.

The Ministry of Pensions had shown what could be done in reeducating maimed soldiers, 80 per cent of whom could be trained to carry on. The need for continuing the work with those maimed while earning a livelihood was clear. The figures serve to demonstrate that industry by developing industrial medicine had the promise of great profit while it fulfilled a great social service.

Professor Collis concluded by pointing out that the trend of thought today was against nationalization of industries, but industries must realize that while maintaining their independence they took over at the same time certain responsibilities as regarded those employed, which under nationalization would be undertaken by the State. Recognition of these responsibilities and taking them up would entrench the position of industrial independence. Failure in this matter, quite apart from economic waste, must sooner or later cause those employed to demand reconstruction of modern industrial organization.

The Physician to the Plant

Dr. I. M. Legge, of the Factory Department of the British Home Office, while allowing that Dr. Collis made a good point by showing how cheaply preventive industrial medicine and treatment of industrial diseases could be done, nevertheless, thought that before shouldering the burden, would be inclined to point out by another little sum in arithmetic, that a biggish sum has already been paid out for health insurance the benefit of which might be considered a little dubious. Thus, from a factory employing one thousand men, every year considerably over two thousand pounds ($6,000) found its way to the panel of doctors probably ignorant of the always interesting work which occupied their patients. Not until the doors of the factory were open to medical men, would there be scope for industrial medicine.

Sir Kenneth Goodby, M.R.C.S. of London, remarked that in certain industries, lead working for instance, doctors were hampered by the goodwill obstruction of employers and employed in efforts to improve their conditions. He dealt at length with lead poisoning, and said that lead operated on the progenitory span of men and women and tended to a reduction in the birth rate. The birth rate for painters was 155, and the general figure was 162. Even the painters were much higher than clergymen, barristers, solicitors, law clerks, farmers, and graziers. The figures showed that the risk must be something more than a question of lead poisoning. Sir Kenneth thought that medical men who were engaged in inquiry should be met not grudgingly, but wholeheartedly by labor. Labor should not regard the statistics by medical men as a sort of opportunity for prying into private life. It was a curious fact that when one began to ask labor for particulars, the first thing one got was a suspicious look and the second was the remark: "Is this for the insurance company?"

Capt. Eliott, M.C., M.P. continuing the discussion said that medical men should be treated by labor, as friends and not as employers' agents, who were only anxious to restore a man's health and send him back to work again. They should remember the intense bitterness and suspicion of Labor in regard to what the working man considered to be an attempt to screw more work out of him for the already insufficient money he was being paid. They might not agree with all these points but that was the working man's way of looking at it; and now at the birth of a new branch of medicine it was important that the correct spirit should be attained.

Capt. Elliott did not agree with the suggestion that laziness was pathological rather than psychological; but he hoped that by further research they would be able to dispel that Monday morning feeling, which many, even medical men, got. With regard to the casualties of industries, he hoped the Section would give the Parliament as

much help as it could on this subject. Money was being paid for this question, but unless they specialized, the scheme of a great organization under the pension schemes would wither and disappear, and the casualties of industry would drift into the unemployable classes.

Hygienic Measures Extended

In a special address on industrial hygiene Sir Thomas Oliver drew attention to the fact that within the past few years the scope of industrial hygiene had widened. It now included not only consideration of the conditions under which work was carried on, the hours of labor and diseases incidental to occupation, but it dealt with the physical effects of work as seen in fatigue and how hours of work and rest might be correlated so that there might be obtained the maximum of effort, also that the hours of respite from labor might be made sufficiently long for recovery from exhaustion to take place, the tendency had been to remove from labor any serfage element which might have clung to it, a remnant of bygone days, and to recognize that men and women were not mere machines, but that they were entitled to the opportunities for improving themselves mentally and physicially. Today industrial hygiene was no longer the affair of one nation but of all of the advanced nations.

The creation of the International Labor Bureau under the auspices of the League of Nations had raised industrial medicine to a higher platform, so that while the health of the workers was one of the main objects, and production was regulated by the physicial fitness of the worker and by the hygienic conditions under which labor was carried on, the fact that industrial medicine had become international would incite backward nations to aim at securing a higher standard of health for their work people as well as more efficient means of increasing production. Arising out of legislation passed for improving conditions of labor and shortening the hours of work, and proceeding through the medical supervision of workers and the elimination of the unfit as well as the substitution of comparatively harmless for harmful methods of production of industrial medicine, it might be said that although it had made such rapid strides that many of the results obtained had become fresh energizing influences in the life of nations, yet many opportunities for good still lay in front of it. Medical examination of workers before commencing their industrial career would perhaps in some instances create hardships, but the ultimate gain would transcend all these. Even with the ordinary precautions taken there would still be found a certain number of persons who would break down in health earlier than others, either as the result of diminished vital resistance or of idosyncrasy. The speaker dwelt at a very considerable length on lead poisoning and also discussed phosphorus and carbon monoxid poisoning.

Fatigue Factors

Fatigue was made the subject of lengthy consideration and it was pointed out that the recent war had been followed by disastrous consequences in the case of many of the discharged soldiers. The long weary vigil in the first line of trenches and the hardships endured, also the comparatively idle month spent away from the firing line, had made many of the men unwilling or unable physically to return to their previous employment. Some of them had lost the taste for work, and they clamored, like those who remained at home for shorter hours of labor. Shortening the shifts and a change in the hours of work were notable factors of the times. Men no longer went fasting to work at six o'clock in the morning and breakfasted in the factory at eight. They left home or should, after a comfortable breakfast in time to reach the factory by 7:30 a. m., and as Collis and R. M. Wilson in their writings show, it had been to the advantage of employer and employed. Better time keeping had been the result and there had been less sickness. Shortening of the hours had in most industries been followed not by diminished but by increased production and by a rise in wages, but as there was a limit to which hours could be shortened and production efficiency retained it was a question whether in some trades this limit had not been reached.

Oliver was anxious to ascertain to what extent fatigue was experienced by the female workers. No method of estimating hitherto in vogue, had been quite free from defects, so that the simple method of testing muscular efficiency which he employed was not above cavil. With the ordinary spring dynamometer used in hospital practice for estimating the muscular strength of patients—the hand grip of women was taken by the lady supervisor, A.B.S.C. of a University, before breakfast, before the midday meal and again just before giving up work in the evening. It was to be expected that at the end of a nine hour shift the instrument would register less than the figure obtained in the earlier hours of the day, and while this was usually the case it was not so in every instance, for on certain occasions, as seen in the school charts, the evening grip registered higher than that of the mornings or midday. Admitting that value of the readings of the dynamometer was diminished by "knack" or the particular manner in which people handled it, yet it could not be said that either the circumstances or habit played any recognizable part in the results obtained. The occasional increase of muscular strength was more frequently observed in women who were employed in such heavy work as shell shifting. He was, however, unable to offer any explanation as to the increased muscular strength at the close of the working day. The speaker concluded by saying that since industrial medicine had come to stay, facilities in the future would have to be provided to medical students and young graduates to become familiar in a practical manner with the objects. Never were the times more opportune than today. The prosperity of a nation was bound up with the health of the people.

Preventive medicine had, he said, practically speaking, swept the British Isles clear of typhoid fever and had considerably reduced the mortality of diphtheria. What it had accomplished on the mortality side of public health it could also accomplish in regard to occupational disease. The die had been cast. There was a psychology of industry just as there was a physiology. Psychology was no longer simply "The Science of Mind or Soul" but the science of the facts of human nature and behavior and there was no department of human activity which offered greater scope for its study and application than industry. Employers no longer regarded "industrial hygiene" as something to be turned down on the ground of its interference with labor, and the conditions under which it was carried on. They recognized that it introduced into industry that something with a touch of humanity in it which softened the asperities of labor, made occupation more healthful and tended to bring employers and employed into closer touch with each other.

National Negro health week will be held April 2-8 at Tuskegee, Alabama, under the auspices of the Tuskegee negro conference and the National Negro Business League in cooperation with the U. S. Public Health Service and similar agencies.

Recent Compensation Decisions

THE Supreme Court of Illinois, October 22, 1921, reversed a decision of the Industrial Commission holding the Commission's evidence insufficient to prove that the claimant's permanent incapacity for work from heart disease was caused solely by the accident in which his ribs were injured. The facts are stated as follows in the opinion of the Court: The employee, A. R. Mercer, was employed in the mine of the defendant. "On December 31, 1918, as he was getting out of an empty coal car the mule started up, catching him between that car and another car in the region of his left lower ribs. He made application for compensation alleging total and permanent disability."

At the time of the hearing before the arbitrator he was totally and permanently incapacitated for work from heart disease, which was conceded, and the only question in dispute was whether the injury was the proximate cause in whole or in part of his disability. The arbitrator decided that the accident was the cause of the total and permanent disability. . . . On a review of the decision of the arbitrator by the Industrial Commission additional evidence was heard and the award was confirmed. The award was confirmed by the Circuit Court.

The applicant was fifty years old and before the accident had worked on a farm and for four or five months prior to the accident had worked in this coal mine. He had always been able to do such work and testified that he never had any kind of heart trouble or internal trouble before his injury; that at the time of the accident he did not think he was hurt and went back to his work, but could not get his breath and was sent home in a buggy; that a doctor bandaged him, and he had been under the care of that doctor and another since his injury; that his heart ached, his head felt as if it was going to burst, and his heart felt filled up and heavy. The doctor who treated the applicant at the time of the injury and bandaged him and also treated him at different times up to the hearing testified that he was suffering from myocarditis, an organic disease of the heart caused by infection and consisting of degeneration of the heart muscles; that the disease is never the result of an outside injury or force applied to the body; that he had examined the applicant thoroughly since the injury and he was in a bad condition, weak and emaciated, but there were no results remaining from the injury which could possibly cause myocarditis; and that he had a temporary disability only from the injury. The other doctor who had treated the applicant testified that when he saw him after the accident he had received an injury of the left lower ribs which from the nature of the injury appeared to be a light blow; that he had been strapped for the injury and was having considerable trouble with his heart and abnormal respiration, and that the squeezing he had could have aggravated the condition that was already there, but the heart disease was present before the time of the injury. This was all the evidence before the arbitrator and commission and was insufficient to sustain an award that the condition of the applicant was solely the result of the accident.

An employee is entitled to the statute to be compensated for every accidental injury suffered in the course of his employment and arising out of the employment. That is the measure and limit of his right, and if an injury sustained is the proximate cause of the incapacity for which compensation is sought, the previous physical condition of the employee is unimportant, and he may recover for permanent incapacity which results from an accident independent of pre-existing disease. He is not entitled to compensation for a condition resulting from a pre-existing disease, and from an injury suffered in the course of employment and arising out of it. If there is a pre-existing disease, the employee is entitled to recover for all the consequences attributable to the injury in the acceleration or aggravation of such disease. Such aggravation or acceleration, permanent and progressive in its nature will entitle the employee to compensation to the extent and in the proportion in which the pre-existing disease is increased or aggravated. Mere predisposing physical condition does not affect the right to compensation. If an accident results in a lesion or a new condition of which it is the proximate cause, there may be a recovery of compensation for the same regardless of predisposing conditions making the employee more susceptible to the injury. . . . Under these rules, the previous condition of the applicant was a material circumstance to be considered in ascertaining whatever his condition of total and permanent disability resulted from the accident suffered in the course of his employment and arising out of it or from the disease, and, if from both, the proportion in which the accident contributed."—*Springfield District Coal Mining Co. v. Industrial Commission, 132 N. E. 752.*

THE Appellate Court of Indiana, December 2, 1921, held that a one-eyed employee receiving an injury causing permanent loss of his eye is not entitled to compensation for the total disability under the Workmen's Compensation Act, Sec. 29, and can recover merely for the permanent loss of the sight of one eye, under Section 31, though the loss of his eye resulted in total blindness.—*Stevens v. Marion Machine, Foundry & Supply Co., 133 N. E. 23.*

THE Appellate Court of Indiana, November 18, 1921, has held that a workman doing his work in the normal and regular way and who sustains an inguinal hernia in lifting has sustained "a personal injury by accident" within the Workmen's Compensation Act, such injury being accidental.

It is "sufficient to say that the uncontradicted evidence is that the injured employee immediately after receiving the injury told his foreman about the severity and location of the pain from which he was suffering; that thereupon the foreman sent him to the nurse; and that the nurse, in turn, sent him to the company's surgeon. From all the evidence bearing on this point, the finding is a legitimate conclusion."—*Terre Haute Malleable & Mfg. Co. v. Wehrle, 132 N. E. 698.*

WHERE an epileptic employee hauling water in a tank on which he had to stand while filling it was drowned in the partially filled tank and there was no direct evidence that he fell in as a result of a fit, a finding that the accident arose out of the employment was authorized and not subject to the objection that from the evidence it conclusively appeared that his death was the result of disease, within Workmen's Compensation Act, Sec. 76, Cl. (d).

Whether or not an employee's death was the result of an accident arising out of the employment is a question of fact for the Industrial Board.

Appellants were in the business of threshing wheat and other grain. Steam power was used and appellants had in their employ at the time Carl Beil, whose duty it was to haul water from a nearby reservoir, in a water tank drawn by horses. . . . By the side of the opening and fastened to the top of the tank was a pump. In operating the pump it was necessary for Beil to stand on the top of the tank near the opening. On the morning of June 12, 1919, and a short time after Beil in the course of his employment had gone to get water, the tank partially filled with water, was found at the reservoir, and in the tank was the lifeless body of Beil. The employee who thus lost his life was subject to epilepsy.—*Miller et al v. Beil et al, App. Court of Indiana, January 28, 1921, 129 N. E. 493.*

THE Supreme Court of Iowa, November 22, 1921, upheld a finding of the Industrial Commissioner that hernia in the following case did not arise from a strain during employment:

"It is the plaintiff's claim that, in pursuance of his line of duty in the defendant's service at the stockyards in Sioux City, he was engaged in repairing certain electric wires extending along or over the top of a high board fence. For that purpose he climbed upon the fence, which act was accomplished by reaching his

arms up and over the fence and throwing his leg over the plank at the top. As he made that movement he felt a sharp pain in his right groin, but went on with his work. He had never experienced such pain before, nor had he ever before developed a hernia, and did not at the time realize the nature of his hurt. This incident occurred in September 14, 1916. He did not report the matter to the defendant or consult a physician until October 2, 1916, when he called upon a doctor who discovered a small hernia in the groin and advised the use of a truss. Plaintiff procured a truss and continued to work for defendant as before until February 3, 1917, when he was discharged. He says that after the alleged hurt, and before he applied the truss, he suffered frequent pains at the point, compelling him sometimes to suspend work. His physician testifies that a common immediate cause of such a hernia is a 'strain from exertion or something of that sort.' This witness further says that a man 'might continue at work with a traumatic hernia until several days had gone by.' It is not, he says, an unusual thing for a man to suffer hernia and 'continue at work for a period of several days and put up with the pain. This is true of enough cases to justify the statement.'

"The arbitration committee found that the alleged injury 'did not arise out of, or in the course of, plaintiff's employment' and is not a personal injury within the meaning of the compensation act, and that 'he has not met the requirements of the burden of proof to an extent justifying the award of compensation.'"

This finding was affirmed by the commission and in its opinion the Court says:

> We are inclined to the view that the showing made by the plaintiff is sufficiently vague and uncertain to bring the case within the statutory rule which makes the finding of the committee and of the commissioner final upon questions of fact, and such being the situation, the judgment of the district court must be reversed. . . . It is a matter of common knowledge that thousands of men suffer from inguinal hernia, and that many of them are able to point to the time and place where it developed and the physical strain or exertion which occasioned it and yet were never prostrated by it. It is doubtless true that in very many cases the lesion takes place from the gradual enlargement of the inguinal rings, and is not traceable to any accident or unnatural strain or exertion; and that much difficulty exists in determining whether in a given case the hernia, if one is found, is of a compensable character. This difficulty justifies the arbitration committee and the commissioner in closely scrutinizing the testimony and satisfying themselves as nearly as possible as to the origin of the alleged injury in order that they may do equal and exact justice between the parties, but the rule applicable is the same as in other cases and requires only a preponderance of evidence.

—Bunch v. Sioux City Stockyards Co., 185 N. W. 139.

THE Superior Court of California, November 4, 1921, determined that where the employee of a packing plant, engaged in putting grapes into a machine, threw a grape at another employee which hit and injured the eye of a third employee engaged in sweeping the floor, this injury to the third employee was not an injury arising "out of and in the course of the employment" within the Workmen's Compensation Act.—*Federal Mutual Liability Insurance Co. v. Industrial Accident Commission of California, 201 P. 920.*

THE Supreme Court of Colorado, November 7, 1921, upheld the finding of the Industrial Commission that the death of any oxy-acetylene welder by lightning while working on a steel bridge was caused by an accident arising out of his employment within the Workmen's Compensation Act.—*Hassell Iron Works Co. v. Industrial Commission, 201 P. 894.*

IN California, recently, the District Court of Appeal held that a woman who was an inmate of a brothel and was reasonably suspected of having an infectious venereal disease may be quarantined by the health authorities of a city and pursuant thereto kept in custody by the chief of police.—*Ex parte Dayton 199 P. 548.*

Anthrax in Animal (Horse) Hair

Anthrax has been found at frequent intervals, particularly in horse hair that has been imported. In New York City during the last seventeen months there have been reported to the Division of Industrial Hygiene 34 cases of human anthrax, 11 of which have been fatal. A campaign of education among those engaged in the manufacture of brushes, particularly those using horse hair, was undertaken in order to secure general cooperation in an endeavor to stamp out this industrial and public health menace.

After a careful study the New York City Department of Health adopted special regulations concerning the manufacture and sale of hair brushes and hair cloth.

Primarily anthrax is an animal disease, frequently transmitted to man, not in the sense that the animal is the host, but the animal is the victim through which man receives the infection. It is widespread in cattle, sheep, and horses, less frequently in man. Experiments in laboratories show that rabbits, mice and guinea pigs are peculiarly susceptible.

Originally, as a source of infection, anthrax was probably telluric, coming to the surface in pasture lands, and through grazing was taken up by animals and disseminated. Lands rich in organic matter seem best suited for the growth of anthrax. Fields may be contaminated through hay or seed from infected areas, or from carcasses of animals not deeply buried, the ground water probably carrying the organisms to the surface. Every object to which anthrax spores can be attached becomes a source of danger and is liable to cause the spread of the disease at any time.

Dr. S. Dana Hubbard writes a monograph on the subject which is published by the Department of Health of the City of New York. He points out among other things the method of prevention, saying that nothing is more important than having workmen provided with and made to use proper appliances, such as gloves, face masks, overalls, which should be cleaned after use. The physician should be on the alert to diagnose the disorder immediately because the earlier the diagnosis the greater the opportunity for success in saving the life of the patient and the prevention of the dissemination of the disease to others.

Public Health Service to Hold Examination

An examination of candidates for entrance into the regular corps of the U. S. Public Health Service will be held in Chicago April 3, 1922, the Surgeon General's office announces.

Candidates must not be less than twenty-three years nor more than thirty-two, and they must have been graduated in medicine from some reputable medical college, and have had one year's hospital experience or two years in professional practice. They must pass satisfactorily oral, written and clinical tests before a board of medical officers.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service Washington, D. C.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Michigan Institutional Health Administration

By RICHARD M. OLIN, M.D., Commissioner, Michigan Department of Health, Lansing, Mich.

A YEAR ago, one of the inmates—a sometime motor mechanic—armed with a stethoscope, the voice of authority, and a supply of pills, was largely responsible for the health and sanitation of the Michigan Reformatory at Ionia. He was supervised only by the occasional visits of a local physician. The deplorable conditions existing in this institution were brought to the attention of Governor Alexander J. Groesbeck in February, 1921. Governor Groesbeck conducted a thorough investigation and placed the Michigan Department of Health in charge of the medical work and sanitary conditions of the Reformatory.

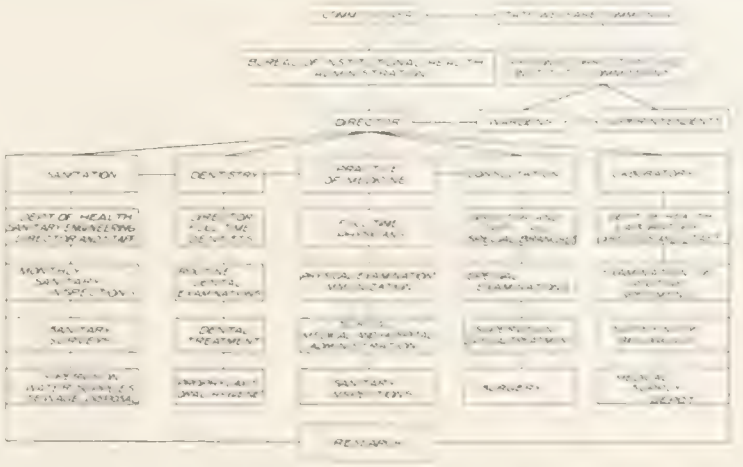
A complete health survey followed, which included the examination of all the seven hundred Ionia prisoners, together with an exhaustive sanitary inspection by Department of Health sanitary engineers. Such findings as eighty-eight cases of syphilis, most of them untreated, twelve cases of valvular heart disease, and sixteen tuberculous inmates, and a total lack of the most rudimentary hygienic measures rendered the necessity for a thorough clean-up imperative. After the initial survey had been finished, a full-time physician was installed and the necessary supplies and equipment purchased for the dispensary and hospital.

State Wards are Studied

Such was the beginning of the Department's institutional health administration. During the preliminary stages of the work, penal and correctional institution medical records were found to be either lacking or so scanty as to be of little practical value, with the single exception of Jackson Prison. Health surveys of all institutions were necessary before any intelligent conception could be gained of the medical problems at hand. Surveys, each one of which occupied a group of workers over periods of from three to five weeks were accomplished, the customary procedures consisting of a complete history and physical examination, a blood Wassermann reaction, throat cultures, and re-examination of cases of suspected tuberculosis, valvular heart disease, and other thoracic conditions. In the younger age groups, the Schick test was added, followed by toxin-antitoxin when indicated, and at the Coldwater Public School all the children were given an intradermic tuberculin (Mantoux) reaction. Sanitary inspections, during which the institution was given the most careful scrutiny, formed an important part of each survey. The Ionia Reformatory, the Branch Prison at Marquette, the Industrial School for Girls at Adrian, the Industrial School for Boys at Lansing, and the State Public School at Coldwater have been examined according to the plan outlined, each inmate coming before the Department's workers at least five times. During these surveys the problem has unfolded itself in a very striking manner.

The State Administrative Board on September 13, 1921, passed a resolution directing this Department to supervise the medical, dental, and sanitary work in all the state penal and correctional institutions and the Coldwater Public School. Advisory supervision of the insane hospitals and other state institutions was also given by this resolution. This discussion is confined to the work in the penal and correctional institutions.

In the background of our plans is the constant endeavor to raise the health of each state ward to the highest possible standard, to cure his disease, to correct his defects, and to make his institutional environment



A graphic illustration of the organization of the Bureau of Institutional Health Administration, headed by Dr. Robert A. Macgregor. The advisory supervision over the health administration of hospitals for the insane is not indicated.

wholesome and physically clean. To this end, a new department bureau has been created—the Bureau of Institutional Health Administration—with Dr. Robert A. Macgregor as its director. Dr. Macgregor has been the physician at the Michigan State Prison at Jackson for several years and is unusually well acquainted with the organization and medical problems of a large prison.

The organization of Dr. Macgregor's bureau is graphically represented on the accompanying chart. (Our advisory supervision over the hospitals for the insane has not been included in the diagram.)

The Bureau office serves as a central clearing station for institutional medical business. In Lansing the following records are filed, kept on a uniform group of forms which were prepared after an exhaustive review of the similar blanks in use throughout the United States:

(1) *Physical Examination.*—A complete history and physical examination on each inmate.

(2) *Daily Report.*—Showing the names, number, and diagnosis of all inmates excused from work on medical grounds, the hospital admissions and discharges, the inmates receiving venereal disease treatment, sanitary inspections, and spaces for miscellaneous information.

(3) *Monthly Reports.*—Showing the number of seriously ill inmates for the month, the number of men received with physical defects, the number of venereal disease treatments given, sanitary measures, consultation, and the transfer of inmates. At monthly intervals, the physicians are asked to furnish us the quantity of food on a certain day, and caloric values per inmate are estimated from this dietary.

A monthly report from the main office of each institution gives the names and numbers of all inmates received and released during that period.

The system of medical records is augmented by a daily sick call card for each inmate, dental cards, a tuberculosis blank, and cards for charting treatment of gonorrhea and syphilis.

From these forms the physical condition of any inmate on admission can be determined at a moment's notice, and changes in his health determined from the tabulated daily reports. When questions of defects or disease arise in connection with the parole of prisoners, the Pardon Commissioner refers the cases to the Bureau of Institutional Health Administration. Dr. Macgregor reports upon the suitability of the given individual for release from a medical standpoint. Cases of syphilis, for example, are not eligible until they have finished two courses of treatment, and until they are free from open lesions. It is also against the general policy of the Department to recommend an inmate for parole who is suffering from diabetes, tuberculosis, or some other chronic illness, unless death seems imminent, or unless very definite assurance is received from his family that they are willing and financially able to care for the invalid.

Hallway in one of the cell wards at Ionia Reformatory, showing overcrowded conditions and disorder. Entrance to hospital in background.

Full-time resident physicians have been stationed at four institutions, and plans call for the placing of others in the immediate future. All these doctors are supervised by the Bureau of Institutional Health Administration as far as their purely medical functions are concerned. It is understood that the physician must be answerable to the Warden or Superintendent for his work outside of the practice of medicine, the situation being parallel to the army, where the clinician is responsible to the commanding officer for the fulfillment of other than medical duties.

Plan of Administration

By direction of this department, resident physicians hold a daily sick call in all respects similar to the same dispensary practice in government service. A detailed history is taken on each inmate, and a complete physical examination done at the earliest convenient date after admission. Blood Wassermann reactions and vaccination against smallpox are universal requirements. In the younger groups the Schick test is performed and the positives followed by toxin-antitoxin. The Compiled Laws of Michigan state very plainly the duties of prison physicians in regard to visiting men in punishment, sanitary inspections, and supervision of food supply; and, by order, the physicians strictly enforce these statutes. The various reports compiled by the resident physicians have been previously enumerated.

Detailed supervision of routine and excessive "red tape" have thus far been eliminated as much as possible, it being the belief of the Department that each physician should have the widest possible latitude in his work and that he should be able to express his own individuality to the fullest extent compatible with the Department's conception of his duties and the wishes of his Warden or Superintendent.

A consulting staff has been appointed quite recently. This group is composed of practitioners, men of firmly established reputation in the branches which they represent. A director and several co-workers have been chosen in each of the following specialties: eye, ear, nose and throat, internal medicine, general surgery, orthopedic surgery, dermatology, gynecology and urology. By a resolution of the Administrative Board, these physicians will receive their expenses and an honorarium of fifty dollars for each day spent in the service of the state. For the time being, the specialists are assisting in remedying the large accumulation of existing defects. Fifty-one tonsil and adenoid operations were done at the Coldwater Public School in December, and a series of more than two hundred tonsillectomies at the Industrial School for Boys, Lansing, were performed in January and February. After the correction of existing surgical defects, an orderly service will be established, consultants in all branches of medicine and surgery making institutional visits at stated intervals, and when emergency calls are received.

Laboratory specimens are examined at the Michigan Department of Health Laboratory in Lansing or at the Branch Laboratory in Houghton. Biological products and neoarsphenamine have been distributed by the

laboratory for a considerable period, it being much less expensive to buy these materials in large quantities, rather than each institution buying a small amount from the retail market. It was the good fortune of the State Administrative Board to purchase the medical supplies and equipment of Camp Custer, Battle Creek, from the United States Army. This material—some thirty large truckloads comprising a very long list of individual articles—has been placed in charge of the Director of Laboratories. A central medical supply depot has been established from which the several institutions will be able to make requisition for the supplies they require, at prices which are only fractions of present day catalog values.

Dentistry is under the direction of Dr. Kenneth R. Gibson. There are four dentists in the field who visit the various institutions (including the insane hospital group), spending enough time in each one to finish the dental work at hand. Dental record cards and monthly reports are filed in the bureau office. It is eventually the department's wish to station full-time dentists at the larger institutions.

Routine Inspection

On his monthly visits, the director makes a sanitary inspection of each institution. In addition, more detailed sanitary surveys are carried out by the State Sanitary Engineer and his staff. Changes in water supply, sewage disposal, and new construction are supervised by the Engineering Bureau.

Next spring the remodeling of an existing building at Ionia as a 120 bed hospital will be undertaken. This building will house tuberculous inmates from all penal and correctional institutions. About seventy-five inmates with active pulmonary tuberculosis are known at this writing. It will also provide facilities for the treatment of cases which cannot be properly handled in the various institutions, and for surgical cases requiring extensive postoperative care.

The fact that no reference has been made to psychiatry or psychology has probably been noticed. Though apparently ignoring the problem, the Department is by no means unaware of its existence, and realizes that any lasting prison reform must include careful studies of the feeble-minded, of the various psychoses, and psychopathic personalities who undoubtedly form over fifty per cent of any state prison's population. Beginning work of this nature is anticipated, but it has been considered wise to try first making healthy bodies, before undertaking the vastly greater problem of diseased minds.

Physician examining one of wards in the Boys' Industrial School, Lansing, Mich.

Institutional health administration is an attempt to give the state wards of Michigan the best possible medical attention. The chief executives believe that in committing an individual to a penal or correctional institution, the state has assumed a very large responsibility. The Governor appreciates this duty keenly, and he realizes that, aside from giving the inmate a square deal, Michigan will derive benefit from a higher standard of institutional medical work. A healthy inmate is more amenable to discipline while serving his sentence. He is, if paroled, physically well, better equipped for earning an honest living, and less liable to repeat the offense which removed him from society. A well regulated physique is the first step toward reformation. This is a single phase of the institutional policy of the present administration governing Michigan. We are firmly convinced that the product of state institutions should be—not commercial articles destined to swell the state treasury—but, men and women.

Health Insurance in Czecho-Slovakia

The *Riforma Medica* of Naples states that the government of Czecho-Slovakia has organized a system of insurance against disease, obligatory for all with incomes less than 20,000 cfowns and optional above this. The choice of the physician is unrestricted.

Baby Health Survey in District of Columbia

Underwood & Underwood, N. Y.

Every child up to six years old in the District of Columbia is being examined by the Child Welfare Society with the view of compiling statistics as to their general health and to make them fit for school

Occupational Therapy in American Institutions*

Therapy, No Longer Limited to Nostrums, Becomes Concerned with Problems of Living

By ADOLF MEYER, Professor of Psychiatry, Johns Hopkins University, Baltimore, Md.

THERE was a time when physicians and the public thought the art of medicine consisted mainly in diagnosing more or less mysterious diseases and "prescribing" for them. Each disease was supposed to have its program of treatment, and to this day the patient and the family expect a set of medicines and a diet, and a change of climate if necessary, or at least a rest-cure so as to fight and conquer "the disease." No branch of medicine has learned as clearly as psychiatry that after all many of these formidable diseases are largely problems of adaptation and not some mysterious devil in disguise to be exorcised by asafetida and other usually bitter and possibly alcoholic stuffs; and psychiatry has been among the first to recognize the need of adaptation and the value of work as a sovereign help in the problems of adaptation.

It so happened that in the first medical paper I ever presented, about December, 1892, or January, 1893,—curiously enough before the Chicago Pathological Society, where one would least expect discussions of occupation—I asked my new neighbors and colleagues for suggestions as to the tastes and best lines of occupation for American patients. The proper use of time in some helpful and gratifying activity appeared to me a fundamental issue in the treatment of any neuropsychiatric patient. In May, 1893, I went to Kankakee and found in that institution some ward work and shop work. Later, under the inspiration of Isabel Davenport, some gardening was introduced for the women in her convalescent cottages, but I also found there a little of a feeling which prejudiced quite conspicuously much of the contemporary attitude toward this question.

Among a most interesting collection of abstracts from the history of American institutions put at my disposal by Dr. William R. Dunton, I find a report on the employment of the insane by a committee from the Michigan institutions, dated 1882 and signed by Dr. Henry M. Hurd. The Committee had visited European institutions and had been especially impressed by their use of occupation as a substitute for restraint, but they expressed the fear that the presence of private patients would interfere with the introduction of occupation. The conclusions contain the following statements:

> Employment of some sort should be made obligatory for all able-bodied patients. . . . (But) it would be feared that such measures would meet with much opposition from all quarters. . . . It might, consequently, be best to arrange at first for the employment of state patients and to procure legislative sanction of the step. If this works advantageously it will be comparatively easy to extend the system to other patients.

This represents the attitude of many hospital men of the time. Industrial shops and work in laundry and kitchen and on the wards were the achievements of that program—very largely planned to relieve the employees.

The Newer Concept

A new step was to arise from a freer conception of work, from a concept of free and pleasant and profitable occupation—including recreation and any form of healthful enjoyment as the leading principle.

When in 1895 I was transplanted to Worcester, Mass., there was little in the atmosphere to foster interest in occupation. Ward work and a few shops were managed merely from the point of view of utility. Only the McLean Hospital had the beginnings of some organized recreative occupations. From 1902 it was my good fortune to have to work on Ward's Island in a division which then was under the immediate direction of an unusually active and enterprising man, Dr. Emmett C. Dent, always eager for therapeutic results and untiring in his development of hospital principles in the face of very cramped opportunities. In this new atmosphere I was greatly assisted by the wholesome human understanding of my helpmate, Mrs. Meyer, who under these conditions may have been one of the first, if not the first, to introduce a new systematized type of activity into the wards of a state institution.

She had become a great help to my patients in visiting them in my ward and had instituted visits to the homes. She was probably the first social worker with a systematic program of help to patient, family, and physician, just before Miss Louise Schuyler urged the introduction of a very eleemosynary type of aftercare in November, 1906. When in 1907 a social worker, Miss Horton, was appointed, Mrs. Meyer turned her attention to the occupation and organized recreation of the patients on the ward, not only in the shops and amusement hall, but in the employment of the available time on the ward.

Shortly after that, in 1909, Miss Lathrop and the Chicago School of Civics and Philanthropy undertook a course of training in play and occupation for nurses, and Miss Wright was chosen to receive this training, and she returned to organize the work throughout the institution—with a wise balance between organized shopwork and more individual work on the wards.

It had long been interesting to see how groups of a few excited patients can be seated in a corner in a small circle of two or three settees and kept contented picking the hair of mattresses, or doing simple tasks not

Mind is energy. Its measured control toward socially useful ends is the social criterion of intelligence. Mental problems are problems of living. Failures of adjustment, even in the mentally incompetent find a corrective in carefully planned activities.

Whether the patient is a misfit from a personality disorder or a physical handicap, occupational therapy tends to create interest, correlated activity, organization, which in their perfect balance spell physical and mental health. Not physical restoration only, but readjustment must be considered the ultimate health objective.

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too readily arousing the desire for big movements and uncontrollable excitement and yet not too taxing to their patience. Groups of patients with raffia and basket work, or with various kinds of handwork and weaving and bookbinding and metal and leather work, took the place of the bored wall flowers and of troublesome mischief-makers. A pleasure in achievement, a real pleasure in the use and capacity of one's hands and muscles, and a happy appreciation of time were thereafter used as incentives in the management of our patients, instead of relying upon abstract exhortations to cheer up and to behave according to abstract or repressive rules. The main advance of the new scheme was the blending of work and pleasure and a wise individualization in occupational methods.

When the Phipps Clinic was opened, we were able to secure the services of Mrs. Slagle, who, with her successors —Mrs. Price and Miss DeHoff, and Mr. Marion, Mr. Russell, and Mr. Case—brought us to the level now represented at the Phipps Clinic.

Somehow the evolution of occupational therapy represents to me a very important manifestation of a general broadening of human philosophy. This development of the valuation of time and work is not accidental, but is to be regarded as a part of the great espousal of the value of reality and actuality rather than of mere thinking and reasoning and fancy, as characteristic of the Nineteenth Century and the present day.

The Personal Problem

The culminating feature of evolution is man's capacity of imagination and the use of time with foresight based on a corresponding appreciation of the past and of the present. We know more definitely than ever that the twenty-four hours of the day are the problem of nursing and immediate therapy, and not the medicines taken *t.i.d.* Something apparently self-evident has taken its proper position in our attention. Just as in its medical aspects we have come to value an appreciation of the exceedingly simple facts of basal metabolism and to measure the expenditure of energy by the amount of CO_2 produced, so the simple fact of a patient's employment of time has become an important index to the physician and nurse. The most important factor in this progress is the newer conception of mental problems as problems of living, and not merely as diseases of a structural and toxic nature on the one hand or of a final lasting constitutional disorder on the other. The formulation in terms of habit deterioration of even those grave mental disorders presenting the serious problem of terminal dementia made systematic engagement of interest and concern about the actual use of time and work an obligation and necessity.

It is very interesting that the progress of all the fundamental sciences has shown the same trend during the last thirty years. The nineties of the Nineteenth and the first decade of the Twentieth Century marked the rise of energetics,—so effectively brought home to all scientists by Professor Ostwald in his lectures in this country some fifteen years ago—a determination to replace the interest in inert matter by a broad conception of the world of physics and chemistry in terms of energies, which means literally "applications of work." Similarly, during this same period the study of human and of animal life gave birth to the concept of behaviorism with its emphasis on performance as the fundamental formulation of what had figured up to that time on the throne of an abstract timeless psychology, curiously enough, first invaded by science in the form of studies in reaction-time. Direct experience and performance were everywhere acknowledged as the fullest type of life. Thought, reason and fancy were more and more recognized as merely a step to action, and mental life in general as the integrator of time, giving us the fullest sense of past, present and future, but, after all, the best type of reality and actuality only in real performance. We all know how fancy and abstract thought can go far afield—undisciplined, uncensored, uncorrected; while performance is its own judge and regulator and therefore the most dependable and influential part of life. Our body is not merely so many pounds of flesh and bone figuring as a machine, with an abstract mind or soul added to it. It is throughout a live organism pulsating with its rhythm of rest and activity, beating time (as we might say) in ever so many ways, most readily intelligible and in the full bloom of its nature when it feels itself as one of those great self-guiding energy-transformers which constitute the real world of living beings. Our conception of man is that of an organism that maintains and balances itself in the world of reality and actuality by being in active life and active use, i.e., using and living and acting its time in harmony with its own nature and the nature about it. It is the use that we make of ourselves that gives the ultimate stamp to our every organ.

Rhythmic Sequences

This growing conviction that personality is fundamentally determined by performance rather than by mere good-will and good intention rapidly became the backbone of our psychology and psychopathology. It became a fair task for our ingenuity to obtain performance wherever it had failed to come spontaneously and thereby to serve the organism in the task of keeping itself in good form.

This philosophy of reality, of work and time, seen in all the sciences appeals to me because it expresses, with respect for fact, the simple and yet most valuable experiences of real life.

The whole of human organization has its shape in a kind of rhythm. It is not enough that our hearts should beat in a useful rhythm, always kept up to a standard at which it can meet rest as well as wholesome strain without upset. There are many other rhythms which we must be attuned to: the larger rhythms of night and day, of sleep and waking hours, of hunger and its gratification, and finally the big four —work and play and rest and sleep, which our organism must be able to balance even under difficulty. The only way to attain balance in all this is actual doing, actual practice, a program of wholesome living as the basis of wholesome feeling and thinking and fancy and interests.

Thus, with our patients, we naturally begin with a natural simple régime of pleasurable ease, the creation of an orderly rhythm in the atmosphere (a wise rule of using all our natural rhythms), the sense of a day simply and naturally spent, perhaps with some music and restful dance and play, and with some glimpses of activities which any one can hope to achieve and derive satisfaction from.

In this frame of rhythm and order of time, we naturally heed also the other factors—the personal interests and personal fitness. A large proportion of our patients present inferiority feelings, often over a sense of awkwardness and inability to use the hands to produce things worth while, i.e., respected by themselves or others. To get the pleasure and pride of achievement and use of one's hands and muscles, the feeling of worthwhileness of a little effort and of a well fitted use of time is the basic

remedy for the blasé tedium that characterizes the indifference or the hopeless depression which so often stands in the way of rallying thwarted personalities. I am convinced that a premium should be put on the production of things that are finished in one or a few sittings and yet have an independent emotional value. They must give the satisfaction of completion and achievement, and that in the eye of the maker and of those for whom he has tried to work. Performance and completion form also the backbone and essence of what Pierre Janet has so well described as the "fonction du réal"—the realization of reality, bringing the very soul of man out of dreams of eternity to the full sense and appreciation of actuality.

Our rôle consists in giving opportunities rather than prescriptions. There must be opportunities to work, opportunities to do and to plan and create, and to learn to use material. There are bound to be valuable opportunities for timely and actually deserved approval and encouragement. It is not a question of specific prescriptions, but of opportunities, except perhaps where suggestions can be derived from the history of the patient and a minute study of the trends of fancy and even delusions reveals the lines of predilections and native longings—yet even here the physician would only exert his ingenuity to adapt opportunities.

I see in all this a profound importance extending far beyond our special field. Our efforts seem to me destined to be the soil for helps of much wider applicability. Present day humanity seems to suffer from a deluded craze for finding substitutes for actual work. It seems more difficult than ever to guide with the traditional preachments.

Our industrialism has created the false, because one-sided, idea of success in production to the point of overproduction, bringing with it a kind of nausea to the worker and a delirium of the trader living on advertisement and salesmanship, instead of sound economics of a fair and sane distribution of the goods of this world, according to need and an education of the public as to where and how to find the best and worthiest.

The man of today has lost the capacity and pride of workmanship and has substituted for it a measure in terms of money; and now his money proves to be of uncertain value. A great deal of activity, to be individually and socially acceptable and exciting enough and mentionable for social exhibition of one's worth, has to be of the nature of conspicuous waste, a class performance like athletics and golf and racing about the country, and a display of rapidly changing fashions. Work and play, ambition and satisfaction, are apt to lose their necessary contact with the natural rhythms of appetite and gratification, vision and performance, and rhythmically recurrent cycles possible of completion—of work and play and rest and sleep.

This special work, which tries to do justice to special human needs is destined to serve again as the nucleus of a great gain for the normal as well. It will work like the Montessori system of education. Grown out of the needs of defective children, it has become the source of inspiration and methods for a freer education of all children.

Physical Education in Oklahoma City Schools

By J. A. WHITEFORD, Superintendent of Schools, Oklahoma City, Okla.*

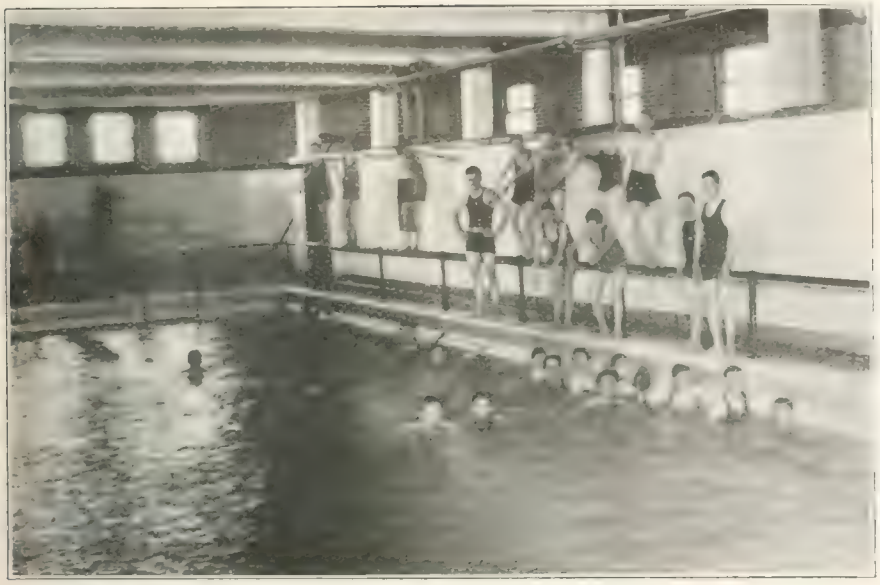
PHYSICAL work in the Oklahoma City public schools may be divided, according to the division of the school system, into elementary, intermediate, and high schools. There are in the school system thirty elementary schools, with approximately sixteen thousand students enrolled; three junior high or intermediate schools, with an enrollment of about 2,650; and a senior high school which enrolls something over two thousand five hundred students. Physical education of the students of the thirty-five schools of the city is in charge of a physical staff consisting of a director, four men and five women assistants giving full time to physical work, and four men and about ten women devoting part time to physical instruction.

Physical Education Compulsory

The elementary schools include students from the first to the sixth grade. For these grades, the first type of physical work is free play, before and after school. Play is supervised at morning and afternoon recesses, consisting for the first three grades of singing and folk games; of group games for the next two grades; and of competitive games for the two upper grades. Leagues are organized within the school for competitive games for the sixth and seventh grades, and occasional games are arranged with other schools, in addi-

The gymnasiums are equipped for complete and systematic physical work. Each student is required to have three hours of physical work each week. The indoor training is supplemented with group games and mass athletics in the open.

*The illustrations for this article were supplied by Layton, Smith and Forsyth, architects.



One hour a week is required to be devoted to swimming, graded in beginning, advanced, and life-saving classes.

tion. A "washout" period, three minutes in length, in which all windows in the room are thrown wide open, and vigorous setting up exercises given, is scheduled three times a day in every elementary school room in the system. Finally, a system of efficiency tests is provided for the fourth, fifth, sixth, and seventh grades, alternate weeks being devoted to practice and tests in such forms of physical work as running, jumping, chinning, etc. All work of this nature is compulsory for all students in these grades.

In the intermediate grades, that is —in the three junior high schools of the city, is found the most complete and systematic physical work of the system. The junior high schools are splendidly equipped with gymnasiums, swimming pools and large athletic fields, two schools having fields covering a full-size city block, and the third two such blocks. Each student of junior high rank is required to have three hours of physical work each week; one hour devoted to formal gymnastics, including setting-up exercises, marching, posture work, apparatus work, and dances; one hour to swimming, graded in beginning, advanced, and life-saving classes; and one hour of out-of-door work, along the line of group games and mass athletics.

In addition to the compulsory work outlined above, an optional program of athletic competition is possible. For boys, contests are held in football, basketball, track, baseball, cross-country, soccer, tennis, and swimming; for girls, in volley-ball, basketball, playground ball, dodgeball, track field hockey, tennis and swimming. Games are scheduled and contests held between classes or teams within the schools, and leagues are arranged providing for series of contests in popular sports for both boys and girls between the three junior high schools. During the football season just closed, six teams contested in league games, each team playing six games; and over one hundred boys received elementary football instruction.

Some Courses Elective

In the Central High School, physical work is elective throughout. Work may be divided into regular advanced gymnasium work, and athletics. Regular gymnasium work for boys includes one day each week devoted to apparatus work, one to posture work, one to indoor track, another to hygiene instruction, and one to competitive games, each member of the class being included in a team which plays a schedule of games in a regular league arrangement. A similar arrangement is used for girls, group dancing being substituted for indoor track and apparatus work. Practically all students enrolled in gymnasium classes are sophomores.

The second phase of physical work in the Senior High School is along the line of athletics. Interclass athletics are conducted in football, basketball, track, cross-country baseball, swimming and tennis for boys; and in basketball, volley-ball, tennis and swimming for girls. No interscholastic athletic contests are arranged in which girls participate; but interscholastic contests for boys are scheduled in football, basketball, track baseball, and tennis. The Central High School is a member of the Oklahoma High School Athletic Association, and of the Oklahoma Central Conference.

It might be mentioned here that a unified system of coaching is used in the senior and junior high schools, so that the junior schools serve as "feeders" to the senior high school, sending to this school several hundred students each year who are trained in the fundamentals of the coaching system in use in the senior high school.

Another point of interest is the financing of athletics in the junior and senior high schools. Athletic expenses in the junior high schools, in-

A view of the cafeteria in the Junior High School, Oklahoma City, a department well supervised, which it is considered is a highly important part of the program of physical betterment.

cluding cost of equipment and the like, are provided by annual appropriations of the Board of Education, and all contests in the senior high school are financed by an Athletic Association composed of the students of the high school, which pays all expenses save the salary of coaches, which is provided by the Board of Education.

Plans are being worked out by which the three junior high schools, with their splendid athletic fields, swimming pools, and gymnasiums, are to be used as community centers, so that the public may have the use of the athletic equipment of the school system as far as possible. Competent supervisors will be placed in charge and the schools ready for use as community centers the year around.

The East Harlem Health Center in Action

By HELEN C. DENMAN, The American Red Cross, New York City

WITH the formal opening in November of the East Harlem Health Center in New York City was launched a community experiment of unusual significance. Not only does the new center unite all the health agencies in the district but it brings together for cooperative effort the welfare agencies as well. Twenty-one organizations, ten of them engaged in community and family welfare work and the others devoted to health and nursing, have come together in the new enterprise. It can safely be said that this is the first undertaking of the kind in the country where the principle of coordination has been applied consistently and on such a large scale in such a fertile field for endeavor as New York's upper East Side.

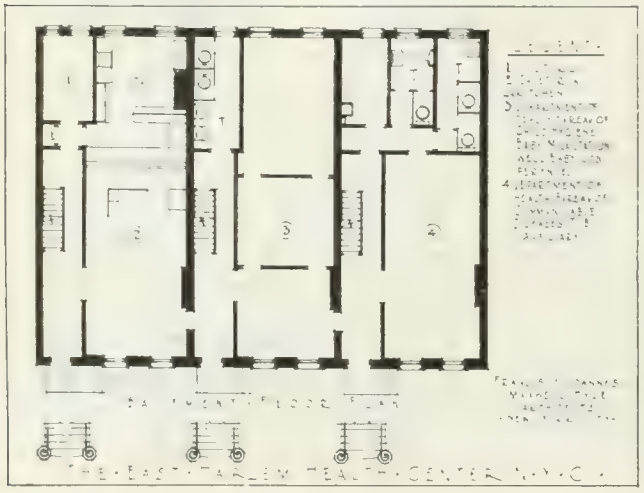
The area selected for the work of the new health center covers eighty-three city blocks and is a census unit of approximately one hundred thousand souls. It runs, roughly speaking, from the East River to Third Avenue and includes within these limits what is known as Little Italy, a large Jewish population, and a small Irish colony. Housing conditions are almost, if not quite, the worst in any section of the city; the buildings date back twenty-five years, are dependent upon gas light, and have none but the barest sanitary conveniences. Needless to say, the diseases which thrive on lack of sunlight and air find the district a happy hunting ground.

In the geographical center of this area the new Health Center has taken up its quarters in three buildings formerly occupied by a hospital. Here may be found the local district work of the New York City Department of Health with its Bureaus of Child Hygiene and Preventable Diseases; the Association for the Aid of Crippled Children; the Association for the Prevention and Relief of Heart Disease; the New York Tuberculosis Association; the American Social Hygiene Association; the Occupation Therapy Society of New York; the Committee on Dispensary Development; the York County Chapter Red Cross; and the nursing agencies which form the nucleus of any health center, the New York Maternity Center Association; the Henry Street Settlement, and the New York Babies Dairy. Side by side with these are the welfare agencies such as the New York State Charities Aid Association; the Charity Organization Society; the United Hebrew Charities; and the New York City Association for Improving the Condition of the Poor. The only agencies not to occupy office or clinical space are five neighborhood houses which from the very nature of their work can serve the district better from scattered vantage points than from a central base. They are, however, keeping in close touch with the group.

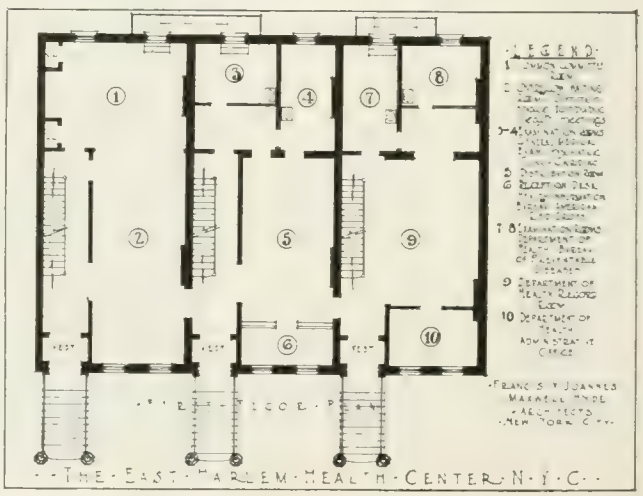
A Time Saving Device

The close connection of poverty with disease is one with which every physician and social worker is familiar, and the practical value of this coordination of health work and family welfare activity is so obvious that one wonders why it is not more universally applied. In having easy access to the case files of the various agencies, each organization is spared the duplication of effort which so often occurs, and time and energy are saved which can be poured back into East Harlem. In the same fashion, by bringing together clinics and offices into one operating unit, a case which is one for the family welfare agencies to handle equally with the health or nursing agencies can be quickly and effectively passed from one to the other.

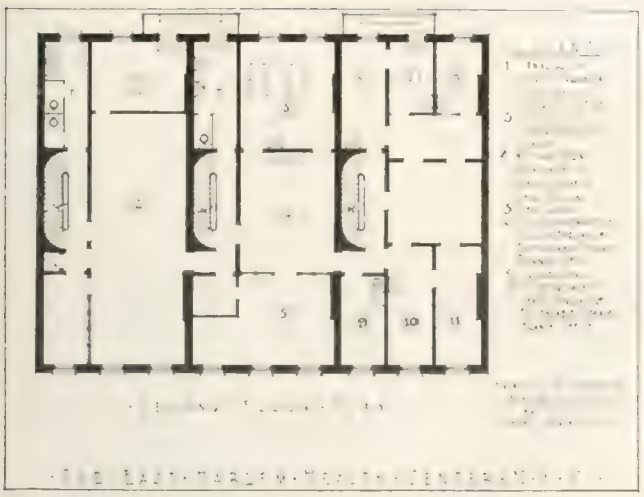
Not only is the new Health Center unique from the point of view of coordination, but it has another claim to



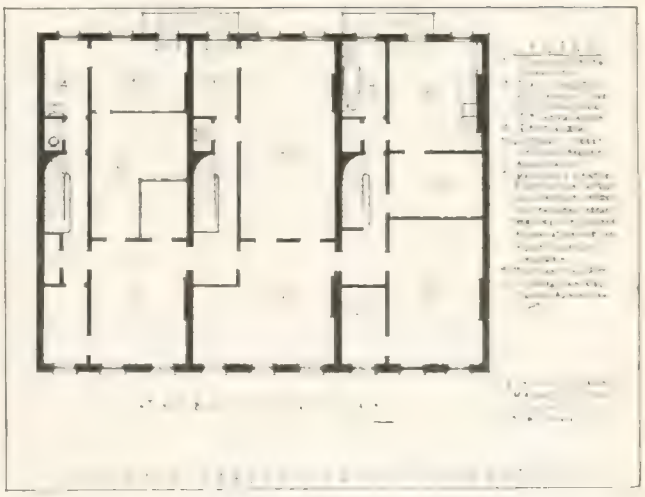
Three buildings, formerly occupied by a hospital were remodeled to house the East Harlem Health Center.



The physical plant is developed to facilitate the cooperative activities of the several agencies taking part in the scheme.



The departments provided for are an earnest of the completeness of the cooperative service.



The permanent value of such an enterprise proves itself through the economy of effort in the labor over common problems.

distinction in the comprehensiveness of its program. Part of its policy is to discover any health needs in East Harlem which are not being met by the agencies already in the field, and to introduce the agencies which will meet the demand. To accomplish this purpose, the Health Center is developing a system of "health bookkeeping." In conjunction with the City Department of Health, the New York County Chapter Red Cross Health Service is studying the vital statistics of the district from 1915 to 1920. The infant mortality rate during that period has been computed. The causes of death with the degree of prevalence of the various diseases have also been determined. Not only will this statistical service demonstrate any shortcomings in the program of the Health Center, but it is expected to provide the Center with a careful accounting of the liabilities and assets with which it is starting its work for the better health of the community. With this material in hand at the beginning, the Center will be better able to show what it has accomplished at the end of any given time.

Already the Health Center has been responsible for a number of important movements toward better health extending beyond the confines of East Harlem. Seventeen thousand children in the district have been given the Schick Test through the agency of the New York County Chapter of the Red Cross and the City Department of Health. About one-third were found to be susceptible to diphtheria and were given the toxin for immunization. As a result of this cooperation between the New York County Chapter of the American Red Cross, and the New York City Health Department, the death rate among children from diphtheria has been reduced 20 per cent, the official figures of the Health Department showing that the deaths from diphtheria for 1921 are 20 per cent lower than for 1920. The Health Service of the American Red Cross provided the money at the request of the Health Commissioner to make a demonstration of the Schick Test in forty-four public schools during 1921. The demonstration lasted three months, the Health Department providing the personnel and the local Chapter of the American Red Cross providing the funds. In this demonstration over 52,000 school children were tested, about twenty thousand of whom were found to be susceptible to diphtheria and were then given the toxin antitoxin to make them immune. As in every case the consent of the parents had to be obtained before the test was made, this meant a forward step in public education for the prevention of sickness.

One of the best results of this demonstration has been the recent vote of the Board of Estimate appropriating funds for the Health Department to continue the Schick Test work in the New York City schools. Finally, as a direct result of the diphtheria immunization work in New York City this service is now underway in a number of places throughout the Atlantic Division including Schnectady, Syracuse and Buffalo. In all these places the American Red Cross is cooperating in the movement.

Popular Health Education

In the East Harlem Health Center district 716 children of preschool age were also prepared for school in September through an interesting experiment in health supervision. Physicians from the City Health Department examined them for physical defects; through the cooperation of psychologists from Teachers' College they were mentally tested and graded; and the Red Cross provided a nurse to follow up on the physical examinations and see that physical defects were remedied. The Red Cross Health Service also provided a dental hygiene clinic for those children during the summer.

Public health education, teaching all classes in East Harlem how to get well and stay well, is to be as much a part of the work of the new Center as relief for the sick and indigent. A plan for promoting interest in health measures through extensive local publicity has been outlined by the twenty-one agencies. It is the purpose of the several agencies to cooperate to the fullest extent in health educational measures directed definitely toward the needs of the groups served. Literature, lectures, social work and clinics will combine to spread the gospel of health and to give an objective demonstration of health gains through health practice. Out of such an experiment may be expected to develop the ability to cope with the constant menace of disease.

The New York County Chapter of the Red Cross which took the first steps in initiating the center, has agreed to finance it for three years as a demonstration. Its existence after 1924 will depend entirely upon whether it has proved its essential value to the community. Officers of the center, as at present constituted, are: Honorary president, Dr. Royal S. Copeland, City Health Commissioner; chairman, Dr. James Alexander Miller; secretary and executive officer, Kenneth Widdemer. The exe-

cutive committee includes the following representative numbers: Homer Folks, New York State Charities Aid Association, chairman; Dr. L. I. Harris, and C. L. Kohler, of the City Department of Health; Dr. James Alexander Miller and Dr. Wm. F. Snow, from the Health Service Committee of the Red Cross; Miss Annie Goodrich, of the Henry Street Settlement, Miss Anne Stevens, of the Maternity Center Association; Lawson Purdy and Bailey B. Burritt, representing family welfare work; Gaylord White, representing settlements and local welfare work; and Father Thomas Kane and Dr. A. M. D. Riggio, representing East Harlem.

California Day Nurseries

IN a community program for child welfare the day nursery may have a place. Just what this place may be is a question which every nursery should consider carefully. Experience proves that no social agency has been more abused.

No one will question that the ideal of family life for children, particularly for young children, is the mother in the home supervising their care. When this arrangement is threatened by inadequate income, illness, or industrial conditions, the most vital consideration is the stability of the family group. All community resources should be enlisted to preserve it. But after all other resources fail there may yet remain cases of children requiring day nursery care. The nursery should always inquire carefully into the case of every child seeking admittance to determine whether there may not be other solution for the family problem.

In the day nursery the health problem is paramount. The average day nursery child comes from a home in which various causes contribute to a reduced standard of sanitation and hygiene. Also the age of the children involved makes them more susceptible to contagious and infectious troubles. The larger the group, the greater the danger.

Considering this menace to health the following standards for the conduct of day nurseries have been adopted in California.

Day Nursery Standards

1. YARD.—Ample play space should be provided. The surface of the play yard should be made dust-free by the use of sand, gravel or tanbark. Stone and asphalt do not make good play surfaces. A portion of the yard should be shaded. If there are no trees, shade or awnings should be provided. There should be a drinking fountain in the yard. The yard should be provided with play apparatus.

II. BUILDINGS.—(1) *Kindergarten or playroom.*—This should be the largest room in the building. It should contain tables, chairs, and a safe heating apparatus. Suitable toys, of educational value, such as blocks, bean bags, balls, and dolls should be provided. Sewing, knitting and weaving materials for the "play-work" should be provided for children of kindergarten age.

(2) *Nursery or sleeping-room for children under two.*—This room should be provided with dark shades for windows; metal cribs with woven wire springs, two feet apart on all sides; heavy folded blankets serving as mattresses; good quality of rubber sheeting; crib sheets; cotton crib blankets.

(3) *Diet Kitchen.*—A small room containing a cupboard for lunches, icebox for babies' milk, small work table, a gas plate or small oil burner. A sink is indispensable.

(4) *Toilets.*—One toilet to every twenty children should be furnished. There should be separate toilets for boys and girls beyond nursery age. Toilet paper should be furnished.

It is suggested that a stationary wooden foot bench be fixed before the toilets and that a patent wooden seat for little children be provided.

(5) *Lavatories.*—One lavatory bowl to every ten children should be provided. There should be furnished also an adequate supply of the following: Soap, individual towels or paper toweling, wash cloths or cut gauze, and drinking fountains.

Every nursery building shall be equipped with adequate fire protection which meets the requirements of the local fire ordinances. It is recommended that a chemical fire extinguisher be placed on every floor. They should be renewed at least once a year.

III. HYGIENE AND SANITATION.—All rules of hygiene and sanitation of the local health department should be rigidly observed. Walls, ceiling and floors should be, as far as possible, washable. Dry dusting or sweeping is prohibited while the children occupy the building.

Adequate ventilation, lighting and heating should be provided. All windows and doors of the nursery should be equipped with screens. Wire screens should be placed around all stoves, open fire-places or other heating apparatus in the nursery department.

The use of common washcloths, towels, combs, hair brushes, and drinking cups is prohibited. Arrangement should be made for the sterilizing of washcloths, bottles and nipples daily and for sending out laundry (towels, crib sheets and blankets).

All bottles and nipples shall be provided by the nursery. No bottle or nipple shall be used a second time during the day unless it has been thoroughly scrubbed placed in water and thereafter thoroughly washed and boiled. No diapers in an unclean condition shall be removed from the premises.

Unless the clothing on a child is thoroughly clean on admission, a suitable garment, the property of the nursery, shall be worn through the day and every such garment shall be marked for identification unless a clean garment is provided daily.

IV. MEDICAL CARE.—A thorough medical examination of each new child admitted to the nursery shall be made and a health certificate signed by a physician designated by the nursery shall be required. The child should be stripped and a record kept of all examinations.

Provisions shall be made for medical supervision of children either by cooperation with clinics or by the employment of a visiting physician. The physician shall make regular visits to the nursery and shall re-examine every regularly attending child at least once a month.

An isolation room for cases of suspected contagious diseases shall be provided.

The nurse shall carefully observe each child every morning at the time of admission and if signs of contagious disease are noted, the child must be placed in the isolation room and kept entirely apart from the other children and a physician or the department of health notified at once. She should supervise the treatment of minor ailments.

V. DIET.—The physician should prescribe formulas and diet. Bottle babies should receive their feedings on regular schedule.

All older children in care should receive a warm and nourishing noon

meal. In addition to the noon meal it is recommended that a mid-morning and mid-afternoon lunch of bread, butter, and milk be provided.

Nursing mothers should be urged and encouraged to nurse their babies as long as the children gain.

Nursing mothers should be urged to go into the nursery at appointed times to nurse the baby. A hot drink and a low chair would be a helpful provision.

VI. SUPERVISION.—The nursery should be under the supervision of a trained nurse who shall be responsible for the sanitation, hygiene, preparation of formulas and health care of the nursery.

The woman directly in charge of the children should understand the proper care of children and should be able intelligently to direct their activities.

A regular schedule for meals, naps, nursing of infants, and bottle feeding should be maintained.

Emphasis should be laid on the teaching of personal hygiene to the children.

There shall be employed by the day nursery a sufficient number of workers to insure adequate supervision and care of children at all times.

A complete segregation should be maintained between infants, runabouts, and older children.

VII. ADMISSIONS.—The State Board of Charities and Corrections deprecate the day nursery care of nursing babies. If, however, their care seems absolutely necessary, no babies under three months of age should be received. Preferably none under one year.

Homes of children admitted to the nurseries should be inspected before a child is accepted. In emergency cases the home shall be visited not later than one week after the child has entered. Any doubtful or dangerous conditions found in homes must be reported to the proper officers of the nursery and to the Board of Health.

VIII. RECORDS, SOCIAL AND MEDICAL.—Records should be kept. The social data should include the following recommendations:

(1) Child's name.
(2) Child's age.
(3) When admitted.
(4) Serious illness.
(5) Names of both parents.
(6) Parents' address.
(7) Occupation of each parent.
(8) Nationality.
(9) Earnings of each parent.
(10) Entire earnings of family.
(11) Religion of each parent.
(12) Mother's reason for working.
(13) Whether widow, married, deserted, or separated.
(14) Number of children in family.
(15) Number at work or in school.

A record of the medical examination of each child should be kept.

It is urged by the State Board of Charities and Corrections that all day nurseries become affiliated with the National Federation of Day Nurseries, office 105 East 22nd street, New York City. They publish at a nominal cost a set of record forms which cover the records required by this Board; also a dietary and pamphlets helpful to the manager, nurse and matron.

Dental Clinics in Hospitals

By MICHAEL M. DAVIS, JR., Ph.D., Chief, Service Bureau on Dispensaries, American Hospital Association, New York City

AT THE request of Mr. Julius Rosenwald of Chicago, the Service Bureau on Dispensary and Community Relations of Hospitals of the American Hospital Association has prepared a report on dental needs and dental facilities in a number of selected cities and medical institutions throughout the country. Four types of dental clinics have been developed in the United States: (1) those in connection with industrial or commercial establishments; (2) those in connection with hospitals and dispensaries; (3) those in public schools; (4) public health clinics in public schools, independent local clinics, or as part of a community dental program.

In order to obtain information as to the number of hospitals and dispensaries offering dental service, questionnaires were sent to 282 general hospitals, including almost all those in the United States having a capacity of one hundred beds or over. Fifty-one per cent answered the inquiries. Eighty-nine of the 144 replies reported dental services in the hospital; in four, a dental service was in the process of establishment; in twelve, it was being planned, and in two, it was hoped for. The answers showed that dental service was either definitely established or well under way in more than one-third of the 282 larger general hospitals of the United States.

In 46 of these hospitals, dental service is recognized as of departmental rank, with assigned beds in some instances and in others with use of beds as needed. In 32 of the 89, dental service is not recognized as a department, but is organized for purposes of consultation and diagnosis. In 11 of the 89 hospitals, dental work includes offering dental treatment to patients but is not recognized as a general department of the hospital.

Of the 89 hospitals with dental service, 41 maintained dental work for their ward patients, but had no general dental clinic. Seventeen of the 89 hospitals had no dispensary clinics of any kind, but of the remaining 72 which had some out-patient department, 48 had a dental clinic as part thereof.

Most of these clinics were for dental treatment as well as for diagnosis, only five being limited to diagnosis only.

The great pressure for dental service is illustrated by the fact that a large number of these hospitals have found it necessary to limit their dental clinic for the use of patients referred from other parts of the hospital or dispensary.

Superintendents from all the leading hospitals recognized the desirability of dental service. The question was rather one of organization and expense in carrying on the work.

Recommendations of the committee in regard to dental service in hospitals were:

(1) A dentist competent as a dental diagnostician should be recognized with adequate rank on the staff of the hospital, and should be given the necessary facilities, such as access to the x-ray and to beds when necessary. (2) The primary responsibility of the hospital in dental care is the dental diagnosis of patients whose mouth conditions are involved as a factor in the disease for which the hospital accepted these cases, and for whom dental treatment is necessary in order that the hospital's medical or surgical work shall attain satisfactory results. In other words, a hospital cannot carry out adequate diagnosis and treatment without undertaking dental diagnosis, and in some instances dental treatment also. (3) A routine dental examination of hospital cases should be included as part of the physical examination. (4) Hospitals maintaining out-patient departments should include a dental clinic for treatment purposes as part of this out-patient department, unless

by some definite affiliation with another accessible dental clinic, the necessary dental care of its patients can be assured. (5) The service of a dental clinic as part of the hospital out-patient department must ordinarily be limited in order to avoid overcrowding. Patients should be accepted in the following order:

The cases would naturally be limited to those already received by the hospital whose mouth conditions are involved in a general medical or surgical condition or those patients who have been referred to the dental clinic from other medical or community agencies with the indication that the dental conditions are involved in the general condition of the patient. Other cases would include emergency work for the relief of pain.

The dental organization thought to be most efficient by the committee should consist of a dentist recognized as head of the dental service of the hospital, assistant dentists, dental interns, and a dental hygienist. The head dentist should be in charge of the organization of the dental work, including the out-patient clinic; assistant dentists should act as visiting members of the staff; while dental interns could assist in the therapeutic work of the out-patient department and also be given advanced dental education in both curative and diagnostic work. The dental hygienist would be a desirable member of the staff and could serve as an agent for cleaning the teeth of bed patients.

Fees covering cost of treatment should be charged but remitted if the patients are unable to pay.

Such dental clinics could give free prophylactic work to children of school age. The cost of this service is less than five per cent of the usual per capita cost of school education. For dental care other than prophylaxis a charge should be made, these fees being remitted when necessary.

Our Dangerous School Houses

ALMOST six million dollars represents the fire loss in schools from preventable causes during 1919 according to an estimate published in *The American City*. The heaviest damage, $556,427, was caused from defective chimneys and flues in 1919, whereas in 1918 stoves, furnaces, boilers, and boiler pipes held first place. Other preventable school building fires were caused by open lights, sparks on roof, matches and smoking, while petroleum and its products, gas, hot ashes, coals, and open fires caused lesser losses.

The report by the Meyer Legislative Committee which surveyed the fire danger in New York City schools discovered that of 695 schools in the five boroughs, 496 had violated fire department regulations. A survey of other cities reveals like discrepancies and only sixty-five cities were found in the United States which had provided every school building within its limits with fire alarm boxes.

The cities who qualify for the safety honor roll are Alameda, Calif.; Tulare, Calif.; Naugatuck, Conn.; Winsted, Conn.; Jacksonville, Fla.; Augusta, Ga.; Nampa, Idaho; Oak Park, Ill.; Hammond, Ind.; Clinton, Iowa; Rumford, Me.; Belmont, Mass.; Beverly, Mass.; Boston, Mass.; Cohasset, Mass.; Everett, Mass.; Fall River, Mass.; Holyoke, Mass.; Marblehead, Mass.; Newton, Mass.; Quincy, Mass.; Reading, Mass.; Salem, Mass.; Sharon, Mass.; Swampscott, Mass.; Walpole, Mass.; Harbor Beach, Mich.; Cloquet, Minn.; Anaconda, Mont.; Goldfield, Nev.; East Orange, N. J.; Nutley, N. J.; Passaic, N. J.; Union, N. J.; Union Hill, N. J.; Buffalo, N. Y.; Cortland, N. Y.; Flushing, N. Y.; Harrison, N. Y.; Ithaca, N. Y.; Malone, N. Y.; Niagara Falls, N. Y.; New York, N. Y.; Rochester, N. Y.; Syracuse, N. Y.; Utica, N. Y.; Walden, N. Y.; Watertown, N. Y.; Conneaut, Ohio; Warren, Ohio; LaGrande, Ore.; Pendleton, Ore.; Forty-Fort, Pa.; Beaver Falls, Pa.; McKeesport, Pa.; West Newton, Pa.; Woonsocket, R. I.; Columbia, S. C.; Salt Lake City, Utah; Norfolk, Va.; Spokane, Wash.; Ashland, Wis.; Manitowoc, Wis.; Milwaukee, Wis.; Superior, Wis.

According to statistics compiled by the National Board of Fire Underwriters through its actuarial bureau, there are on the average five school fires a day. Recorded school house losses in the United States during the four-year period 1916 to 1919, inclusive, amounted to $19,846,038. This would reach probably $25,000,000 if unreported and uninsured fires were taken into account.

The great loss of life in the large school fires such as those in Collingwood, Ohio, Peabody, Mass., and in the Hochagela School in Montreal is largely due to panic and not primarily to fire itself. An organized fire department easily reached is considered the only effective means of handling panic and preventing extensive loss of life. For this reason, the installation of fire alarm boxes in every school house in the United States is urged to safeguard the children.—Rollin Kirby in the New York World. Courtesy National Board of Fire Underwriters.

In view of the many school house fires, will it come to this?

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Mixed Benefits of Open Air

OPEN air schools are not an unmixed blessing and the results attributed to them are often due to the regular hours, good food, and medical care of the children rather than to fresh air itself assert Prof. William A. McCall and Bronson L. Huestis of Columbia University in *The Scientific Monthly.*

Until the recent era man was a troglodyte, a cave dweller. For eons ventilation was unknown. Less than a century ago the heavy canopied bed was in favor and the "miasma" of night air was a distinct phobia. Only modern man has regarded fresh air as a necessity.

The rapid spread of the open air school, its no abandonment record, the descriptions of its success, the rapid gain in weight of the children, the therapeutic value,—these facts so often set forth are basis enough for the widespread belief in the efficacy of the fresh air school, assert the writers. In addition, it is claimed that the open air school makes education twice as efficient; it makes the children happier, improves attendance, and in some cases improves their truthfulness. Their popularity may be due in great measure also to the fact that they are a radical departure from the old type of school.

The writers' thesis is that the benefits which accrue to pupils in open air schools are not due to the open air primarily but to the regulated hours, good food, and good medical attention which children in the ordinary schools do not receive. The program of the open air schools begins at 8 a. m., when the children are served hot soup, and bread and butter. After every half hour they have vigorous exercise. At 10 a. m. they have two glasses of milk, bread and butter; at 12:30 a good dinner is served followed by sleep. At 4 p. m. they have milk, rye bread, and jam. At 7 p. m. they are given a good supper and sent home. The child in the regular school is in the school room from 9 to 12 and from 1 to 3. Medical, dental, and optical care received from the school authorities is inadequate.

Even experiments conducted to compare the advantages of the open air school as opposed to the ordinary school must be viewed with caution, the writers state. An open air test with the third and fifth grades checked with the same grades in the ordinary school was conducted for four years from 1912 to 1916 in New York City. Psychological tests and physical examinations were made twice each school year. The results showed a slight balance in favor of the open air schools for which the writers feel that other factors might be responsible. The children who made up the open air group were given extra lunches and frequent outdoor play both of which were denied the other pupils.

In D. C. Bliss's experiment in Montclair, N. J., for which the same types of children were selected for both open window and control classes, the results showed no difference in the groups in the psychological tests but notable superiority in health for the control groups, while in an experiment made the previous year in which the open window class was unprovided with the special lunch, the health of the children showed up even less favorably.

The use of washed and recirculated air by the New York State Commission on Ventilation in two New York City school rooms showed a 2 per cent greater progress in educational, psychological, and medical measurements for the pupils in the partly fresh washed air school room.

The writers favor open air schools, they state, mainly because they insure to the pupil medical inspection, good food, and sufficient exercise, all of which should be the privilege of all pupils in all of the schools.

The Red Cross Health Nurse

IN THE remote districts of the Northwest, covering territories more than ten thousand square miles in extent, traveling by means of automobiles, and by horseback over rough trails are the Red Cross Public Health nurses. Alaska, Porto Rico, and the Virgin Islands as well as the forty-eight states of the Union know and benefit by the services of the Red Cross nurse.

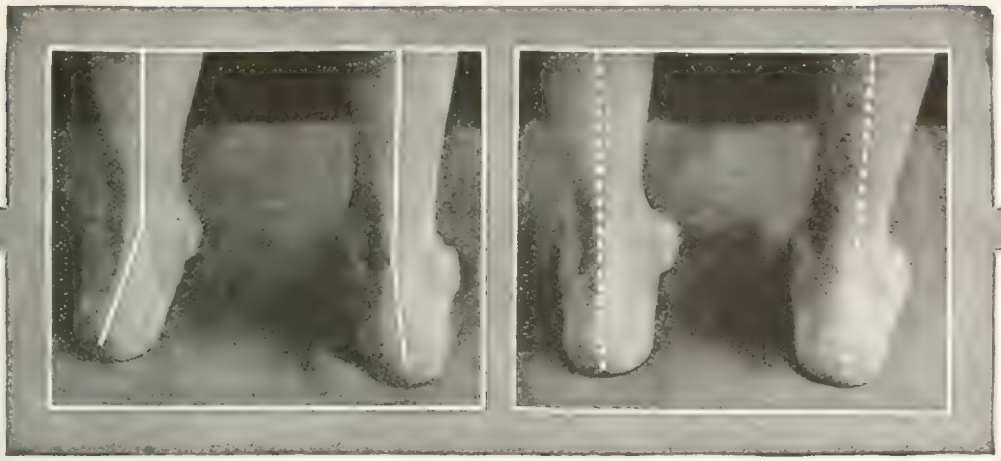
American Red Cross.

"She goes (1,335 of her) into the mountains, into the rural communities and mining and lumber camps; sometimes on horseback, sometimes on foot, often on snow shoes, or in her trusty 'flivver'."

The objective of these nurses is the care of the sick, the correction of physical defects, the improvement of the health of the whole family, and of the community. Employed for the most part by the chapters, they work in close cooperation with the country and state health authorities, and in many places have proved of such value to the community that they have been taken over by the public authorities.

During the past year the Red Cross Public Health Nursing Service has nearly doubled. On July 1, 1920, 908 nurses were employed in 817 different places. A year later 1,267 nurses were employed in 1,240 different places. Moreover, 400 chapters are ready to establish public health nursing service as soon as nurses can be found.

To increase the supply of these nurses the Red Cross since 1919 has appropriated $240,000 in scholarships to enable graduate nurses to take a public health nursing course. The chapters have contributed almost as much for the same purpose. Every incentive is offered to develop a unified system of service through which community health can ultimately be achieved.



Weak Arch and Flatfoot —

that need mechanical correction are very prevalent and frequently are associated with painful heel, callouses on sole, fatigue, nervousness, neurasthenia, physical exhaustion and rheumatic tendencies. Heavy people and those who are constantly on their feet and whose occupation requires them to assume a posture conducive to the weakening of the leg and foot muscles are usually victims of these complaints. The corrective treatment is simple. Remove predisposing causes such as short hosiery, improperly fitted or constructed shoes and have patient fitted to

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Rhythm, Music and Education

MANY psychologists are writing on rhythm either as primarily concerned in the organization of mental stimuli or, secondarily, in its bearing on fatigue. At least one author (M. K. Bradby) presents the thesis that the logic of the unconscious mind is merely a correlation of rhythms, mental association and memory complexes, grouping themselves according to similarity of rhythm. Practically all the behavioristic psychologists concede mental superiority to the motor types, and physical education is advocated principally because it develops those muscular coordinations which favor integration and result in controlled and well ordered living.

The energy concept of mental processes is more and more emphasized and current theories of psychopathology are based mainly on energies pent up, persistent, and misdirected. It remained for Emil Jaques-Dalcroze, a teacher of music, to develop through eurhythmics a system of training which finds expression instead of inhibition and repression for the child's need for movement and recreation, as a necessary part of the school education, and couples ideas, and singing and listening capacities with bodily movement. He puts practice before theory and discovers in irregularities of gait and difficulties of coordination innate mental capacities or incapacities. Esthetic sense is developed, and the technicalities of musical training are not given in unsuitable cases. The child of complete musical incapacity, however, he says is as rare and as easy to recognize and classify as cases of idiocy in general school work, or of criminality in everyday life.

In certain schools where this method of training has superseded stereotyped systems of physical gymnastics, health and the acquisition of balance have found a parallel in the broader educational achievement. The benefit to the personality of transposing into movement of the dynamics of emotion will be conceded by the psychologist. If at the same time mere instruction is replaced by the cultivation of temperament, artistic as well as utilitarian ends will be served. The method has value.

G. P. Putnam's Sons, 1921.

Industrial Hygiene in Toronto

A SURVEY of general conditions of industrial hygiene in Toronto has been issued by the Associate Committee on Industrial Fatigue of the Research Council of Canada. The Committee on Industrial Fatigue was established by the Honorary Advisory Council for industrial and scientific research in the Spring of 1919 to consider to what extent fatigue is a factor in industry in Canada and to what extent it calls for scientific investigation, and to establish means for research, if this seemed desirable. The object of the survey was to investigate the general conditions of industrial hygiene in some one respective locality which would make available information both on the probable incidence of fatigue and on the practicability of conducting intensive research into its causes. Data were collected in Toronto to give the general attitude of employers toward industrial hygiene and the measures taken to promote it. Seventy-six plants were visited, including all of the large plants and some of the smaller.

On the whole there was found to be a widespread recognition of the value of good working conditions, with very little recognition of the fact that "good working conditions" can be determined not vaguely and indefinitely, but very accurately by a knowledge of the laws that govern the human body. While there is an interest in the subject, there was found to be a lack of continuous and organized effort to promote it. Most of the welfare work, so-called, and the employment management, was done solely with the object of improving relations between employer and employees and "keeping the man on the job."

The report goes further into detail to discuss the factors which hinder the extension of industrial hygiene, conditions observed, medical service in industry, sanitation, occupational diseases, and lost time from sickness.

The Committee recommended that a specific piece of research be planned and that the whole question of occupational disease needs research into the effect of substances in use, with recommendations as to the best preventive measures.

Principal Causes of Death

The Census Bureau's Summary of Mortality Statistics, 1920, which will be issued shortly, shows 1,142,578 deaths as having occurred in 1920 within the death registration area of continental United States, representing a death rate of 13.1 per 1,000 population as compared with 12.9 in 1919, which was the lowest rate recorded in any year since the registration area was established in 1900.

The death registration area (exclusive of the Territory of Hawaii) in 1920 comprised 34 states, the District of Columbia and 16 registration cities in nonregistration states, with a total estimated population on July 1st of 87,486,713, or 82.2 per cent of the estimated population of the United States. The state of Nebraska was added to the registration area in 1920, so tnat at present the only states not in the area are Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia, and Wyoming. The figures for the territory of Hawaii will appear in the report, but they are not included in this summary.

The death rate from pneumonia increased from 123.5 per 100,000 in 1919 to 137.3 in 1920. For chronic diseases of the heart the rate increased from 131.0 to 141.9; for cancer, from 80.5 to 83. Some of the other diseases for which the rate increased are whooping cough, measles, cerebral hemorrhage, congenital debility and malformation, puerperal fever, scarlet fever, and appendicitis. The fatalities caused by automobile accidents and injuries show an increase from 9.4 per 100,000 in 1919 to 10.4 in 1920.

A marked decrease is shown in the death rate from tuberculosis, which was 114.2 in 1920 as compared with 125.6 in 1919; also in the death rate from influenza, 71.0 in 1920 as against 98.8 the year before. The death rate from suicide declined from 11.4 in 1919 to 10.2 in 1920. There was a decline also in the rate for typhoid fever and in that for accidental drowning.

It is said that the busy bee, so often held up as a model of industrious work, actually works twenty minutes a day. The explanation of the great amount that he accomplishes is said to be in the fact of the perfect organization of the hive. Perhaps it would be wiser for us to emulate the bee's social organization more and his supposed industry less.—Goddard.

How the Right Shoes Increased Her Sales

A true story with a lesson for all men and women

"MISS GREEN, [illegible] Later I took each of those girls, in turn, to the Cantilever S[illegible] attention. We don't feel cross, cranky or tired. I suppose that's why our sales are good."

[illegible] conforms to the human foot, even to having a flexible arch like the foot. He said, "the arch of the foot should flex with every step, according

a concealed metal shank-piece that forbids free movement of the muscles. There is no rigid shank in Cantilevers. The 'waist' is designed to hug the instep, the shoe fits and supports the arch restfully. The flexibility allows the arch [illegible] tural lines of the shoe, permits perfect circulation.

[illegible] exercise, to keep well and strong. The forepart of a Cantilever Shoe is shaped to look well, while allowing the toes to lie in their normal position [illegible] enough to be smart, without throwing the posture [illegible] do, causing unnatural pressure and strain on the nerves and the [illegible]. By wearing Cantilever Shoes a woman avoids headaches and backaches, irritability and nervousness. She is [illegible] and happier."

[illegible] Dr. Warner Brown, [illegible] Department of Public Health of Pennsylvania [illegible] "Pain is a great foe to good looks. Comfort works just the other way. If [illegible] about you are apt to be pleasant, and pleasantness and politeness go [illegible] Plan here as many of your wants as [illegible]

—Grace Margaret Gould in "Good Looks" a Woman's Home [illegible]

"Winning women [illegible] the world [illegible]. It is the girls who get a good foot [illegible] get on in business, the highest [illegible] Scientific physical [illegible] efficiency and [illegible] earn higher salaries by studying [illegible]

—Dr. Eva [illegible] N. Y. [illegible]

If [illegible] dealer listed at the right is near you, the Manufacturers MORSE & BURT CO., No. 1 Carlton Avenue Brooklyn, N. Y. will gladly give the Cantilever Shoe Booklet and the address of a nearby dealer.

Cantilever Shoe

comfortable—goodlooking

Cantilever Stores

[illegible]
Indianapolis—L. S. Ayres & Co.
[illegible]
Tacoma—Fidelity Building (8th floor)
[illegible]
Toledo—LaSalle & Koch Co.
[illegible]

Public Health in the 18th Century

Incidental to a discussion of the "Life and Writings of William Douglass, M.D., (1691-1752)," Dr. George H. Weaver in the current *Bulletin* of the Society of Medical History of Chicago brings out a number of interesting features concerning medical and public health work in America early in the Eighteenth Century. Boylston, Douglass, and Golden were the three conspicuous physicians of their generation. Douglass was the only physician in Boston with a medical degree, while Boylston introduced inoculation for smallpox, a procedure which was opposed by Douglass as a novel and dubious practice, insufficiently assured as to its safety and consequences. His position that there was danger of spreading smallpox through inoculation was well taken and his essay concerning smallpox is a brief concise statement of the disease.

In 1736 Douglass published a descriptive papers on "The Practical History of a New Epidemical Eruptive Miliary Fever," which was the first accurate clinical description of scarlet fever in English. In the absence of any medical school or hospital, he apparently became the teacher of the less favored members of the profession. He possessed the quality, common to most great men, of desiring to raise the standards of his profession. He favored the regulation of the practice of physics throughout the province and urged a plan for the appointment by the General Court of a board of physicians and surgeons who should examine all practitioners.

Dental Work in Institutions for the Insane

When an individual is committed to the care of an institution under state, city or private management, it is assumed that he will receive every medical attention of whatever nature is deemed advisable by competent medical authorities, but this taken for granted proposition has not been applicable to dentistry, states Frederick A. Keyes, D.D.S., in a recent issue of The *Journal of the National Dental Association.* Dental societies, says Dr. Keyes, have been very lax in presenting to governmental agencies the importance of the care of the teeth to the general health of institutional communities. The enormous amount of work done in such institutions and what remains yet to be undertaken among the population temporarily or permanently confined in institutions throughout the country calls for adequate equipment for first rate dental work. Figures are given showing the amount of work that has been done and also the status of the resident dentist as indicated by the salary scale of the employees at state institutions.

The science of dentistry and incidentally the science of medicine has suffered from the prevailing lack of system relative to indexing the physical condition of such patients subsequent to adequate dental care. The real value of such work is supported by available statistics relative to the incidence of infectious diseases, and at least one man, Dr. Cotton, claims to have established a definite relation between psycho-neurosis and oral sepsis. Dr. Keyes deplores the radical and excessive enthusiasm on the part of some dentists who claim that the teeth are the foci of infection which are the primary cause of the whole gamut of human diseases, but he urges the necessity for adequate dental care for all inmates of institutions, with such records as will bring out the scientific explanation of the relation of teeth to physical as well as to mental disease.

Stammering and Its Correction

The general public is awakening from the illusion that if a child fails to develop normal speech there is nothing to be done in the way of correction. Correct habits of speech may be obtained by training. It nas been estimated that 2 per cent of all children stammer. In Girard College, Mr. Leon Mons reports 8 per cent of the pupils as having defects of speech and about 4 per cent of these as stammerers. The new charter of Philadelphia makes speech correction obligatory. Training for speech is training for life, according to Mary Summers Steel in a recent issue of the *Pennsylvania Medical Journal,* and one of the anomalies of the educational world is that speech, the highest development within the possibilities of man, has been neglected or left to chance. The most important years for the training of speech are the first five years of life. Speech is an acquired faculty and stammering is an acquired defect, the result of incoordination of the mechanism of speech. The child generally begins to have trouble because he does not know how to combine the art of ideation with that of oral expression. He struggles to utter words after the mind has gone forward.

In discussing whether speech training should be physical or psychic, Mrs. Steel goes on to say that the best results are secured through education in the use of the peripheral mechanisms. After obstructions to normal breathing have been removed, all young children showing the slightest tendency to hesitate in speech should have daily training in correct active breathing for voice production, rhythmic exercises, and very distinct dictation of short colloquial sentences which the child may repeat.

Eye Sight Conservation Council Elects

At the annual meeting of the Eye Sight Conservation Council held in New York, February 7, the following officers were elected: Director for three years, R. M. Little, director Bureau of Rehabilitation, N. Y. State Department of Education, Albany, N. Y.; general director, secretary and treasurer, Guy A. Henry, New York, N. Y.; finance committee consisting of Wm. A. E. Drescher, Rochester, N. Y.; Arthur Frank, New York, N. Y.; John H. Hardin, Chicago, Ill.; Charles R. Johnson, Mt. Vernon, N. Y.; and Dr. Frederick Willson, Reading, Pa.

Dr. Eugene L. Fisk, of the Life Extension Institute, addressed the meeting on the subject of "Fatigue." A paper on defective vision as a contributing factor to fatigue in industry written by Dr. Frank Gilbreth, industrial engineer, was read by Bailey B. Burritt.

Mask Protects Eye Glasses

Underwood & Underwood.

A new mask, suggested by the ordinary baseball mask, has been invented for basketball players who need to wear glasses while playing the game. The device allows plenty of room for the glasses.

Sherman's Polyvalent Vaccines

A more adequate and rapid immunity can be established with polyvalent vaccines than from an infection itself. SHERMAN'S POLYVALENT VACCINES rapidly stimulate the metabolism and defense of the body with a resultant prompt recovery in general acute infections.

Given early, bacterial vaccines almost invariably cut short the common pyogenic infections of the skin, mucosa joints and tissues;

Administered in advanced cases, they usually ameliorate or abbreviate the course of the disease;

Even when used as a last desperate expedient, they often reverse unfavorable prognosis.

The immunizing powers of stock vaccines are demonstrated by the prophylactic efficiency of typhoid vaccine. Bacterins made from selected, vigorous organisms are far higher immuno-producers than autovaccines prepared from feeble, degenerated organisms sometimes found in the patient's own specimens. Especially in acute cases, the PROMPT injection of a stock bacterin is decidedly preferable to the DELAYED injection of an autogenous one. The place for autovaccines is in chronic infections which fail to clear up under stock bacterins due to the probable presence of some unusual bacterium.

Advanced inflammatory processes due to only one class of bacteria are rare, mixed infections being the rule. Therefore, COMBINED VACCINES, containing all strains likely to be present, give the best assurances of success; an unneeded variety of the bacterin is harmless and in no way weakens therapeutic response.

Thus the favorite invaders of the nose and throat are the pneumococcus, the streptococcus, the staphylococcus and the micrococcus catarrhalis, calling for Sherman's No. 40, and in chronic cases—when there is a foul odor produced by the Friedlander bacillus — Sherman's No. 36. In visceral infections, due chiefly to the colon bacillus with the pus cocci, Sherman's No. 35 is appropriate. In Neisser infections, if these organisms are not already allied with the gonococcus, the imminence of their entrance is so great that the rational combination is Sherman's No. 49.

When, particularly in grave cases, valuable time may be lost in securing the variety of vaccine especially recommended, it is always advisable to use the vaccine at hand which contains the predominant organism of the disease to be combatted.

Sherman's 10 Mil Container

This package has many superior features which assure asepsis, prevent leakage and facilitate the removal of contents. It is constructed on the well known Sherman principle.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the asceptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

Twenty Preparations. *Beyond the experimental stage.*

BACTERIOLOGICAL LABORATORIES OF
G. H. SHERMAN, M. D.
DETROIT, U. S. A.

"DAILY USERS OF VACCINES USE SHERMAN'S"

Training in Psychiatric Nursing

In estimating the requirements of psychiatric nursing and placing a value on the training received by the average nurse to equip her for state institutional work, Donald A. Laird, reports in the *American Journal of Psychiatry* an investigation made of the training offered in twenty-five representative state hospitals. The final averages show that only about one-tenth of the formal training received by the nurses is concerned with topics strictly related to the chief duties of a state hospital nurse. Normal and abnormal mental studies received 10.5 per cent of the time of instruction; occupations and recreations received but 2.4 per cent, while ½ of 1 per cent of the courses is devoted to social service and mental hygiene. Mr. Laird's criticism is that the state hospital training schools follow entirely too closely the same plans and courses as the general hospital schools and that in most cases the final product is poorly trained for both mental and general nursing. Psychiatric nurses should receive psychiatric training. They should be registered nurses as well and their special work should be so organized as to bring desirable candidates in large numbers to psychiatric training schools. An inquiry into the content of the psychiatric courses revealed the fact that none of the curricula studied present the subject; none of them has a presentation of the psychology which will go far toward giving the nurses a working basis for psychologizing for themselves. Mr. Laird goes on to say:

A grave danger lurks in a psychiatric course which deals mainly with types, pathology, and emergencies. When no comprehension is received of the mental mechanisms operative in all psychoses, normal and pathogenic, the nurse still retains the popular conceptions of mental disorder with which she entered the service of the state hospital and sees in insanity the results of degeneracy and inferiority at least. The modern conceptions of mental disorders recognize other factors than the purely organic as being operative in the genesis of unusual mental states. When those engaged in the immediate care of mental patients receive enlightenment along lines that will undermine their superiority psychosis the case histories will contain fewer records of othematoma and related effects of the psychiatric content now in vogue in the State Hospital Training School.

An extended treatment such as would be required to cover adequately the topics necessary to convey to the nurse working conceptions concerning the psychoses and neuroses would obviously take more time than is now utilized in giving clinical epitomes. But since the psychiatric nurse should receive the training that will best fit her to be of most service in the patient's adjustments, sufficient time can be found in the ordinary course of study by maintaining a proper balance between the essential and the auxiliary courses.

The Adolescent Girl

The health problems of the adolescent girl are developed and explained in a recent popular publication of the Child Welfare Organization of America, entitled "My Health Book." The rules of the game of life are enumerated and the right of the young and growing girl to be filled with energy and ambition is emphasized. It is imperative that at least once a year there should be a physical overhauling, complete and thorough, in order to ascertain whether the machine is in good working condition, and any discoverable defects, which should be at once corrected. Perhaps the most important feature is the determination of weight. Underweight, if marked, is a departure from health which should be recognized. It is an indication of malnutrition, caused sometimes by food improper in kind or insufficient in amount. It may be the result of bad conditions of work, bad surroundings, bad habits of exercise, and rest or play. In order to reach the highest levels of health and efficiency and power for service, a girl must carefully study the question of diet; her teeth must be in order; her eyes, skin and feet in condition.

Study Rickets Among Italians

THE deplorable amount of rickets among the Italians, who, in their own country are normally freer from this disease, suggested the analysis of dietary and living conditions of Italian immigrants to discover the etiology of the condition. This subject was the subject of a recent investigation among Italians in Boston reported by Dr. Bessie Talbot Strongman and Dr. Henry Ingersoll Bowwitch in a recent issue of the *Boston Medical and Surgical Journal*.

The handicaps of the rachitic are too well known to need comment. Its control as a measure of pelvic deformity in women would of itself be of great economic value and its influence is considerable in causing chest deformities, which are contributary to subsequent respiratory disease.

While the figures in this study are inconclusive as to racial predisposition, crowded and dirty living quarters, lack of sunshine, or diet of low energy quotient appear to affect the Italians more unfavorably than Hebrews and Poles, for instance. The susceptibility of Italians to rickets is characteristic only of city dwellers, suburban Italian communities showing little rachitic deformity. The suburban population doubtless get more green vegetables, potatoes and milk and have better living conditions.

Certain characteristic habits and tendencies are fairly widespread among Italians. Early marriages give a maximum child bearing period with little attention to prenatal care. Nursing is unduly prolonged. There is but little discipline. When the child is finally weaned, it is immediately placed upon adult diet. Spaghetti, macaroni and white bread are the main foods, all of a highly milled wheat and lacking in vitamines. Moreover, the macaroni is frequently undercooked, and is habitually served with oil, a practice which delays the splitting up of the starch in the digestive process. The fats employed are increasingly cotton seed substitutes, which is entirely deficient in the fat soluble vitamines. Meats are sparingly used and meat fats are employed in negligible quantities. Milk is unpopular among the Italians in Boston.

There exists, then, a deficiency of vitamines and proteins, which may for economic reasons become extreme, as many of these people have families out of proportion to their incomes. The mothers are very busy with their large families; the day's fare is often provided in one kettle into which is placed what they have in the house, not following any given recipe and without regard to food values. The younger children are apt to be the more rachitic, and maternal fatigue may constitute a factor. The housing is unfortunate, as families, already crowded, often make room for a boarder. These mothers cannot be induced to give up their Italian cookery for the detested oatmeal. Trained workers, therefore, are needed to devise diets which are known to the Italians and are palatable to them.

Domestic science courses for the women and children, better adaptation,—Americanization, if you please, —will eventually eliminate the rolling rachitic gait of these Italian children.

Yeast in relation to dietary deficiencies

THE constant need for a sufficient supply of water-soluble vitamine in the diet is now well-known. Physicians are aware that general debility and susceptibility to miscellaneous infections follow the continued ingestion of food containing too little of this dietary factor.

Yeast is richer in the water-soluble B vitamine than any other known substance—in laboratory experiments it was found to be four times as efficient as dried spinach.

"A scrawny, lethargic animal, rapidly dwindling in size, with unsleek coat and evident malnutrition, will completely change its appearance and responses in a few days at most on a diet unchanged except for a tiny bit of yeast"—that is the description given by one of the foremost physiological chemists of America.

In experiments carried on at the Laboratory of Physiological Chemistry of Jefferson Medical College the ordinary household yeast (Fleischmann) was utilized as a source of vitamine and was found to have very important properties.

The American Journal of Physiology (vol. xlvii, no. 2) has an interesting report on this test of yeast in remedying dietary deficiencies. Young white rats, *starving* on a diet of beef, butterfat, casein and starch, given the same diet plus 5 per cent Fleischmann's Yeast showed gains in weight [illegible] per cent in [illegible].

The success of these and similar experiments has given impetus to the study of yeast. Physicians are now prescribing it for certain dietetic troubles, and the yeast treatment, both in hospitals and in private practice, has been attended with marked success.

Fleischmann's Yeast [illegible] an easily obtainable, economical, and scientifically standardized source of vitamine. It is [illegible] fresh daily, from grocers, or if the physician prefers he may write The Fleischmann Company in the nearest large city and it will be mailed direct on the days ordered.

Usual dose one cake administered, t.i.d., plain, or in suspension in water, fruit-juices, or milk. As whole milk is a rich source of the fat-soluble A vitamine the dosage with milk insures a bountiful supply of both vitamines, a very favorable combination in correcting deficient diets. Yeast may be taken with meals or on the empty stomach. If the patient is troubled with gas formation, dissolve the yeast in boiling water before administering or administer living yeast between meals.

THE FLEISCHMANN COMPANY, [illegible]

Czecho-Slovakia Gives Builders State Aid

A new law has gone into effect in Czecho-Slovakia which grants state aid to builders of dwelling houses. The law permits the requisition of public land for private building purposes, and, under some conditions, of land owned by individuals, and provides for a court of arbitration, consisting of representatives of both workers and employers. This court also decides all conflicts between building workers and employers. Other courts are provided to fix the prices of building materials. The state is to subsidize all dwelling house construction done in 1921 and 1922. All new permanent dwellings are to be free from taxation for fifty years; the builders of temporary buildings intended to last at least twenty years will receive subsidies amounting from 40 to 60 percent of the total cost of construction.

To obtain funds for this undertaking, the state is to issue lottery bonds up to the amount of one billion dollars. About one-sixth of this amount is to be used in building houses for government employees.

A summary of an article on "Housing Measures in Czecho-Slovakia," by the Czecho-Slovakian minister of social welfare, published as an appendix to a report of the United States Department of Labor on the economic condition of that country in 1920, was published in the *Monthly Labor Review* recently.

Hygienic Rites Practiced by Savages

The African savages, who polish their teeth to ivory whiteness with the chewed ends of sticks, may be greatly deficient in many ways, but in their extremely careful observance of this hygienic rite they serve as examples to many civilized people, is a statement contained in a "Tooth Talk" in a recent issue of *Public Health*. The editor goes on to say:

The proper care of the teeth is quite as essential to the well being of the body as the unceasing vigilance of sentries is to a beleaguered army. The mouth gives access to infection. Unless the teeth are kept clean they will become infected and decay. Tiny particles of decomposed food remain between the teeth and create an ideal breeding ground for germs. When this condition exists these pernicious little enemies find their way into the blood through which they circulate to all parts of the body.

They likewise promote the decay of the teeth, which means the breaking down of an essential part of our physical machinery. Proper mastication of food is essential to good digestion and broken, ill-kept incisors, bicuspids and molars do not make satisfactory cutting and grinding machines. As a result, unfair demands are made upon the digestive systems and trouble is apt to ensue.

With dentistry in its present high state of development, there can be but one excuse advanced for rotting, ill-kept teeth,—carelessness.

Begin with the children at an early age, and teach them to clean the teeth thoroughly at least twice a day, morning and evening. Do not excuse neglect in the care of children's teeth by the fact that the first or temporary teeth will be replaced by others. Their present health, the prevention of decay and its accompanying pain, and the formation of the essential habit of cleanliness in these early years make the care of children's teeth a matter of the utmost importance.

This care is equally essential to the health of adults. Numerous serious ailments can be traced directly to bad teeth. There is another distinct advantage to be derived from proper tooth care. How cheerful an introduction is the smile which displays a row of sound teeth. It seems to bespeak cleanliness, healthfulness and self-respect.

Dirty Milk Responsible for Many Deaths

Milk is one of the most important and valuable of human foods, says a recent editorial in *Public Health*.

It is indispensable to rich and poor alike, the one standby of man through all the ages of life—infancy, youth, maturity and old age. Yet in spite of its importance and qualities, milk may be a most dangerous carrier of disease. There is not a single article of food which requires more careful attention and handling than does milk. Its white cloak, instead of denoting purity, often serves as a shield for the concealment of dirt and infection. Milk is an admirable food for germs, as well as for human beings, and consequently when infected is usually more dangerous than infected water or food. Among the diseases which are spread by and which have been definitely traced to milk are typhoid fever, scarlet fever, tuberculosis, diphtheria, septic sore throat, and diarrhea and enteritis. The last two named diseases alone are responsible for more than 65,000 deaths among children under two years of age, in the United States each year. Dirty milk is directly responsible for a large proportion of these deaths. The mortality among babies fed on cow's milk is ten times that among those nursed by their own mothers. The result is not due so much to the physical difference between the cow's milk and the mother's milk, as to the disease germs and filth which find their way into cow's milk. To have safe milk, we must have clean milk. To insure clean milk, we should observe these requirements: Healthy cow, clean and careful milking, proper and sterile containers.

British Chief Medical Officer Issues School Report

That 70 per cent of the school children of England and Wales need dental treatment was disclosed in the annual report of the Chief Medical Officer of the Ministry of Health for 1920. Two-fifths of the children coming up for inspection were found to be suffering from defects. From five to seven per cent had diseased adenoids and tonsils requiring surgical treatment. Illness was found to be the real or alleged cause of most cases of absence.

That summer time is not detrimental to the health of children was the conclusion reached after a study of the effect of the Summer Time Act.

During the past year, the school medical staff has increased from 224 whole time officials to 800. In addition many school nurses and regular physicians have been employed. Approximately 2,400,000 children were examined in three groups—entrants, 8 year pupils, and leavers. Secondary school inspection has now been made compulsory also.

Device to Aid the Armless

Keystone View Co.

Major MacLure, an English inventor, has perfected a device for the armless which enables them to read and turn over pages, paint, sketch and write. He is distributing them free of cost to London hospitals.

KOTEX

Lessens the Laundry Problem

KOTEX are cheap enough to throw away, and easy to dispose of instantly by following directions found in every box.

Kotex is **so** easy to obtain at drug, dry goods, and department stores. No unnecessary counter conversation. Simply say, "A box of Kotex, please." They come in Regular size and Hospital size. The Hospital size is extra large, and therefore adequate for any emergency.

Kotex, once used, form a new sanitary habit. They are unsurpassed at business, when traveling, or at home, and a supply should always be kept on the shelf.

Kotex are very well made of fine gauze and Cellucotton —a wonderful sanitary absorbent now used in most leading hospitals. Extra long tabs for secure and comfortable pinning. There is no explanatory printing on the blue box, merely the name Kotex.

Kotex solves a difficult laundry and hygienic problem.

Cellucotton Products Co., 208 S. La Salle St., Chicago
51 Chambers St., New York. Factories: Neenah, Wis.

Regular Size, 12 for 60c
in Canada 85c

Hospital Size, 6 for 45c
in Canada 60c

Sample of either size mailed in plain wrapper for 10c.

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

The Instincts and the Unconscious

Just as physiologists have been interested in ascertaining the biological background of organic development and function, both in man and in the lower organisms, so are psychologists finding in mental reactions traces of the record of racial experience and in the psycho-neuroses an expression of the pathologic recurrence of modes of action formerly useful, but normally long displaced by the more recently developed conduct of a higher order and therefore subject to a more unstable control. Disregarding the sex implications of the Freudian scheme, its many useful features are employed in explaining the psychic mechanisms by which the experience is sorted, sifted, secured, or suppressed, according to its compatibility with the main body of the individual experience, according to the satisfaction or dissatisfaction afforded, or to the degree of effectiveness as useful reaction.

The morbid aspects of the human mind, especially the illuminative cases brought out by the psychoses of warfare, have served to emphasize the importance of the content of the unconscious mind, and the great mass of literature growing out of war experience bids fair at last to develop a common body of psychological principles and measures for the handling of the cases of nervous unbalance encountered in civil practice, measures which correspond with proved and accepted practice in medicine and surgery.

This book by W. H. H. Rivers is a substantial contribution to the biological theory of the psycho-neuroses. After a series of analytical chapters on the unconscious, suppression, repression, suppression and inhibition, dissociation, the complex, suggestion, hypnotism, sleep, and hysteria as the various means by which the human organism attempts to solve the conflict between re-aroused instinctive tendencies and the forces by which they are normally controlled, Rivers concludes with a treatise on the process of sublimation as a therapeutic agent, this process often involving re-education. Whether the outcome of such conflict and such re-education be genius or paranoia depends upon the measure of re-direction it is possible to give the misdirected energy.

The energy concept of mentation is maintained throughout, psychic as well as physical reaction being conceived to operate under the dynamic laws which govern everywhere the transfer and transformation of energy. It is to be noted that the perfect mental adjustment which spells complete stability is a non-productive state.

Instability in this book has been considered in its rôle as the producer of disease; but the inevitable conclusion is that we must likewise look to the unstable types as the source of the energy from which accrues the great accomplishments of art and science, and as the motive power of those great movements which express the universal craving for human betterment. One is reminded here of the parallel between the periodic table in physics in which the stable elements must be regarded as end products of energy expended, recombinations and predictable changes being looked for where the net force is in disequilibrium.

Cambridge University Press, 1921.

Industrial Fatigue and Efficiency

THE problems of industrial fatigue, its measurement, control and influence upon efficiency have been developed recently by Dr. H. M. Vernon, the investigator of fatigue for the British Research Board in his recent book "Industrial Fatigue and Efficiency." Fatigue is defined as a "diminution of the capacity for work which follows excess of work or lack of rest, and which is recognized on the subjective side by a characteristic malaise." The sense of fatigue may be regarded as subjective or objective in character and special attention is here paid to the objective side of the situation, that is, the capacity for work. Subjective fatigue tends to be cumulative, reacting upon the health of the worker, for if one's health gives away the productive capacity of the worker may be entirely lost until his health is regained.

One of the most important objects of fatigue studies is the determination of the influence of the fatigue induced by an industrial occupation on the health of the worker. Although fatigue occurs, it may not be sufficiently severe to be regarded as pathological. The results of cumulative fatigue may be delayed for weeks, months or even years. The occupation itself or the conditions under which the work is performed may be the cause of fatigue. It may arise from the occupation *per se* or may be the result of the conditions under which the work is performed. It is unreasonable to suppose that the worker's entire energy will be expended upon his industrial labor. Other interests, recreation, and amusement should be a part and parcel of his life. The worker has a certain supply of energy each day and the more he spends on wasteful or unnecessary tasks the less he has for useful ends and the more his efficiency is reduced. To the degree that fatigue is avoided or eliminated, the efficiency of the worker is increased, and the object of industrial efficiency is to obtain a maximum production with a minimum of effort.

It is impossible in a limited space to do justice to the painstaking effort and careful observations which Vernon has gathered together. The study of hourly, daily and weekly output and hours of work in the various industries, the six hour day and multiple shifts, rest periods, lost time, limitation of output, sickness, accidents, mortality, etc.—all receive a keen analysis with a factual basis heretofore lacking in so many discussions.

In concluding his analysis Dr. Vernon has outlined certain general principles which should be adopted. First of all the employer must have healthy factory conditions, "adequate lighting, heating and ventilation of workshops, washing facilities, cloak rooms or ambulance room, and if possible a well found canteen." The selection and arrangement of work spells, meal breaks and rest periods is of great importance depending in large part on the decisions of the employer. Saturday half-holiday, public holidays, and summer vacation are indispensable.

It is also of great importance that individual factories and industries collect and study data on their problems systematically. Accident data should be divided into different categories and classified by the sex of the worker, the time of their occurrence, and possibly a separate classification of accidents incurred. Sickness records must be more exact and the output of piece work should be tabulated and classified from time to time to check up restrictions of output. The questions of scientific management and vocational selection have not been developed inasmuch as they are really individual fields independent of the present study.

E. P. Dutton & Co., New York, 1921.

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A Social History of the American Negro

A history of the negro people tracing their problems and difficulties from their African habitat, through their development in America, the system of servitude, the progress of slavery, the gradual rise of consciousness, organization and leadership, has been published recently by Benjamin Brawley. About 1830, with the Abolitionist agitation the challenge was thrown to the slave holders. This discussion of slavery was not peculiar to America, it was part of the world wide attitude, the problems of the negro were for some time afterwards largely incidental, at least so far as the general public was concerned. But the negro race was gradually gathering momentum. Nat Turner's insurrection called instant attention to the great moral and economic problems involved in slavery, definite lines of cleavage were marked out and the hopes for compromise disappeared. The third period or epoch with which the author deals extends from the Civil War to the opening of the Great War. The thirty years from 1865 to 1895 the author says "may be regarded as an era in which the race, now emancipated, was mainly under the guidance of political ideals."

The term "political ideals" is used loosely here, although politics in its popular and most savory sense may have been present always, ideals seem conspicuous by their absence. It might be said that the period of adjustment was rather more determined by social and economic than political factors. Politically, so far as the nation is concerned, the race was free. Federal troops were withdrawn in 1876, local force followed by mechanical devices such as the so-called Grandfather's Clauses, did not develop until somewhat later in Mississippi about 1890. These disturbances developed first from the lack of administrative facilities for the enforcement of the equalitarian doctrine declared and secondly, as has been said from the attempt at social and economic readjustment, unplanned and unsupervised.

The second part of this period 1890 to 1915, from the point of view of the contemporary observer is most interesting and instructive. Unrest and violence are found but solid economic and social progress was made under the leadership of such men as Booker T. Washington. The progress of a race against prejudice and calumny is astonishing and inspiring. If the future is to be interpreted in the light of the past, these barriers will drop. We who seek to inspire the world with thoughts and aspirations might well turn to our own back yards and set our own houses in order. The author pleads modestly for a campaign against lynching and some of the other outrages. Can we accomplish international peace when interracial peace in our own life is far afield? Although we have come a long way, there is a long way to go, and only the intelligent analysis and planning of a controlled situation can clear up some problems. "The negro problem is only an index to the ills of society in America."

The Macmillan Company, New York, 1921.

The Stages of Human Life

How are we physiologically to perform the continuous duties of a healthy citizen, and, secondly, how is this to be extended to succeeding generations is the theme of J. Lionel Taylor's study of "The Stages of Human Life." His material is divided into three general subjects, personal, public and racial hygiene, the last being termed also eugenics. The present book is an attempt to show that each age or stage of life has a distinct contribution to make and it is our business to live most effectively each stage. In a popular style much of the material relating to public health of current vogue is developed and reinforced with quotations from various literary lights from Aristotle and his confrères to Sir William Osler, omitting, we regret to say, Mr. H. G. Wells and his cinema of history, certainly a grave omission.

E. P. Dutton & Co., New York, 1921.

Medical Charitable Service

THE Director of Charity (Conseil Supérieur de la Bienfaisance) Beligum, has published a report or study on "The reform of Charitable Medical Service" by Dr. René Sand. This reform of medical service in fact presents two aspects: First, it covers as a corrollary to the universal reform in charitable relief which has been in progress more than a half century, and, second, as a result of the increased interest and concern with regard to safeguarding public health. So far as the service is concerned, as pointed out, the point of view of the individual and of the groups is convergent, the problem being first to apportion among the sick and indigent a service prompt, efficacious and more certain; and then to preserve and to improve the capital of health and productivity which is the richest force of a nation. To this end, scientific organization has replaced empiricism, preventive work superseded curative or remedial work.

A commission was organized in 1895 to study the situation reporting in 1900. Of the various reforms which it recommended but one has been realized, the creation of a Superior Council of Charity, in May 26, 1912. Since the armistice the question has been revived and as a result of legislative enactment this report is made. The study is limited to Belgium, in which, as in many other countries, the same methods of reform, the same solutions have been offered and realized. The war also made a virtual revolution in surgical and medical fields, dependent in large part for its success upon hospital facilities. The report is divided into four parts: (1) the description of actual medical charitable service; (2) an explanation of those reasons favoring reform in medical service; (3) proper methods of improving the service in the home, medical, hospital, pharmacological fields, etc., and administrative reforms for the charitable service; and (4) the conclusions of the Conseil, the general plans for reform and the measures to be immediately applied. The appendices attached contain articles on the disposition of medical aid, and the questionnaire of Dr. Sand.

Makes Plea for Rural Life

Mr. C. T. Wing, the representative speaker at a conference of the National Union of Teachers at Bridlington, reported in the *Lancet*, London, of April 16, 1921, makes a plea for rural life and the open-air school. "It would pay local authorities to scrap all school buildings in the center of the cities and to build on the outskirts, where the winds blow, the flowers grow, and the birds sing," he says.

Colombia School Inspection

By a decree of the National Government, the Inspector of Public Instruction is charged with the duty of making frequent visits to the secondary and professional schools of Bogota. He is to supply complete statistics of the progress of education to the ministry of education, reports the *Bulletin of the Pan-American Union*.

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FROM THE FIELD

Volume I of the history of Great Britain's medical service during the war has just been published. This is the first of four volumes dealing with the general history of the medical services. They will be followed by eight more volumes covering the fields of surgery, hygiene, pathology, tropical medicine, etc.

Ten new centers for the medical and dental treatment of school children attending London Educational Committee Schools are to be opened during 1922-23 according to reports contained in *Health* (London). Four of the centers will treat minor medical ailments, and the remaining six will be in the nature of dental clinics.

The hospitals of Richmond, Va., for the first time in the history of nursing education in the state, have combined to offer a course of lectures in public health nursing, tuberculosis, community sanitation, and public health. The lectures are being given by the Richmond School of Social Work and Public Health and are made possible by an appropriation made by the Richmond Tuberculosis Association.

The American Electrotherapeutic Association and the New York Electrotherapeutic Society held a joint midwinter clinical session at U. S. Public Health Service Hospital No. 61 at Fox Hills, Staten Island, N. Y., on December 29 and 30. A two days' demonstration of physical therapeutics open to physicians generally was held during this meeting under the auspices of the U. S. Public Health Service.

Representative Lester D. Volk of New York has introduced two resolutions in Congress dealing with narcotic drug addiction in the United States. One resolution directs the Secretary of the Treasury to furnish facts concerning a recent ruling of the Internal Revenue Department which would deprive addicts of the treatment and advice of their physicians and compel them to enter penal institutions and private sanitariums for treatment. The other calls for an investigation of the entire subject of drug addiction.

More persons were sent to the insane asylums in the State of New York than in any previous year, according to the report of the State Charities Aid Association recently submitted to the state hospital commission. At the close of the year 1921, 39,736 patients were inmates of the thirteen hospitals for the insane, an increase of 1,445 over last year. The increase in insanity is attributed to unemployment and distress caused by economic conditions. The establishment of occupational schools in connection with state hospitals was urged as a valuable therapeutic measure.

Mortality from organic diseases of the heart reached a total of 124,000 during the past year in the death registration area according to figures just published by the Bureau of Census of the Department of Commerce. If that part of the United States not in the registration area had as many deaths in proportion, the total mortality from cardiac disease would be 151,000. The highest rate from organic disease of the heart for 1920 was 180.8 per 100,000 for New York state and the lowest was 87.3 for Kentucky.

The Department of Commerce, through the Bureau of the Census, announces that within the birth registration area of the United States, 1,395,523 births were reported among the white population and 103,976 among the colored in 1920, and that the birth rate per 1,000 females was 48.2 for the white and 52.8 for the negro. The registration area includes 23 states and the District of Columbia and comprises 62.3 per cent of the total white population and 37.2 per cent of the total negro.

Dr. Eugene R. Kelley, State Commissioner of Health of Massachusetts, is sending out letters to expectant mothers to supplement the advice of the attending physician. These prenatal letters are available for physicians or others interested. Monthly post-natal letters are also sent to mothers until the child reaches the age of one year. This is an effort on the part of the Massachusetts State Board of Health to reduce maternal and early infant mortality and morbidity.

The Commonwealth Fund of New York City will finance for five years a program in methods of preventing delinquency and has made an appropriation of $165,000 for the first year's work. Constructive and experimental activities will be conducted under a joint committee by the New York School of Social Work, the National Committee for Mental Hygiene, and the Public Education Association.

While the function of issuing employment certificates to minors has been transferred from the New York City Department of Health to the Department of Education by an amendment to the compulsory education law and labor law, the health department still maintains its protective guardianship over the child's health and all children applying for certificates must pass a physical examination given by it.

A system of industrial insurance for the entire force of workmen has been established by the board of directors of the National Railroad Lines of Mexico. This insurance is to be paid from the surplus receipts of the railroads without depriving the employees of any of their salary. The amount of insurance will be proportionate to the position, salary, and length of service of the employee.

Better Times (New York) comments editorially on the fact that for three years the East River Recreation Pier at the foot of Twenty-fourth street has been used as a storage house for street cleaning machinery while 15,456 children, mothers and fathers in the twelve city blocks in that district have wilted in the city's heat. The docks were turned over by the city to the government during the war for the storage of naval supplies and following the war were assigned to the city department of streets. The Pier is fully equipped for its original recreational purpose. Social workers hope to have it turned back to the people by summer.

A field study of the conditions under which children are prepared for and directed into industrial life is being carried on by the industrial division of the United States Children's Bureau in cooperation with the Junior Division of the U. S. Employment Service. The work of various agencies in fifteen cities is being studied intensively.

Radiant Heat *vs.* Convective Heat

In industrial as well as private practice there is frequent need for the application of heat, particularly in such cases as neuralgia, neuritis, sciatica, mastoiditis and rheumatism.

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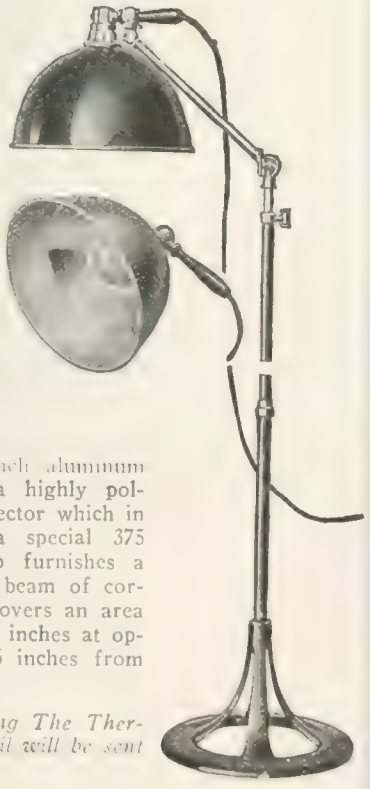
This new method of heat application insures deeper penetration, resulting in a marked hyperemia, with a decided sedative and analgesic effect derived from reflex action on the peripheral nerve endings.

The new Thermolite radiates only parallel rays, with no focal point to cause burning.



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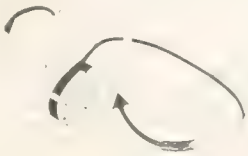
She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.



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The Bureau of Jewish Social Research, 114 Fifth Avenue, New York, has been formed by the amalgamation of the Bureau of Jewish Statistics and Research, the Field Bureau of the National Conference of Jewish Charities, and the Bureau of Philanthropic Research. Samuel A. Goldsmith is the director.

Jersey City, N. J., has a new health center located at 123 Grand Street, the gift of Henry A. Colgate.

Slow-thinking pupils in German schools have had their intelligence considerably quickened by the administration of thyroid preparations. Medical research has shown that backward pupils are suffering from a hypofunctioning of the thyroid gland. Psychological research under the direction of Erich Jaensch, professor of Philosophy, University of Marburg, has discovered an entirely new world of juvenile mental activity, that of intuitive images. This ability to reproduce or clearly perceive intuitively is of great importance in building up a child's fund of concepts and percepts.

Three studies of the physiological cost of muscular work appear as follows in the *British Medical Journal*. "Physiological cost of muscular work measured by the exhalation of carbon dioxide," by A. D. Waller and Miss G. De Decker, *Brit. Med. J.*, 1921, I, 669-71; "Physiological cost of muscular work," by L. Hill and J. A. C. Campbell, *Brit. Med. J.*, 1921, I, 733-4; "Estimation of the physiological cost of muscular work," by J. B. Orr and J. P. Kinloch, *Brit. Med. J.*, 1921, II, 39-40.

The largest mass of data on the heights and weights of children under six years of age ever brought together in this country has just been made public by the U. S. Department of Labor through the Children's Bureau. These records form a basis for measuring future progress. Of the 172,000 records tabulated, 167,024 were those of white children, and 4,976 those of negro children. Children in rural districts slightly exceeded the average for city children in both statue and weight. California children were found to be both taller and heavier than other groups in the study. Boys under six averaged one-third to one-half an inch taller and one pound heavier than girls of the same age.

Kenilworth, Ill., is cooperating to the fullest extent with the Illinois Board of Health in urging that every case or suspected case of communicable disease in the village be reported to the village health officer. Letters to this effect accompanied by a complete list of reportable diseases have been sent to every householder.

A resolution requesting the delegates to the Conference on the Limitation of Armament to call an international conference to suppress and regulate the commerce in drugs has been presented to Congress by Representative Julius Kahn, chairman of the House Committee on Military Affairs. The resolution was referred to the House Foreign Affairs Committee which is making an investigation of the international traffic in habit-forming drugs.

Industrial, engineering, and educational agencies are linking their efforts in a nation-wide movement for conservation of eyesight according to a report in the New York *Times*. Investigation in New York and London schools shows evidence of positive correlation between defective vision and retarded scholarship. In the London survey in which 32,000 boys and 29,000 girls were examined, it was shown that vision was progressively better with the progress of the children in scholarship, with the cases of bad vision relatively more frequent among the backward children. The investigation of the American Engineering Council's Committee on Elimination of Waste in Industry shows that heavy economic losses to industry and many accidents are caused by workers with defective vision.

The United States Bureau of Education is acting as the coordinating agent of the movement. U. S. Commissioner of Education Dr. John J. Tigert has been elected a member of the Board of Counselors of the Eyesight Conservation Council of America with headquarters in New York City. The following men are engaged in this work: Dr. Arthur L. Day, director of the Geophysical Laboratories of the Carnegie Institute, Washington; Dr. Thomas D. Wood of Teachers College, Columbia University; Dr. Allan J. McLaughlin, United States Public Health Service, Washington; Dr. Frederick R. Green, secretary of the Council on Health and Public Instruction of the American Medical Association, Chicago, and Dr. W. S. Rankin, state health officer of North Carolina.

"Making Work Fascinating as the First Step Toward the Reduction of Waste," was the subject of an address by Walter N. Polokov, consulting engineer, at the annual meeting of the American Society of Mechanical Engineers in New York City. Welfare work which diverts the worker's mind from his work, which acts as a 'spiritual cocain,' is directed along the wrong course, said Mr. Polokov. Such welfare work admits that there is no interest or satisfaction to be found in industry and that entertainment must be found outside of industry.

A wage of $14.50 for a 48-hour week has been established as the minimum wage in the public housekeeping industry in the State of Washington. The daily wage set is $2.50 for eight hours and the hourly minimum is thirty-five cents. Uniforms are to be furnished and laundered by the employer.—*Consumers' League Bulletin* (Cincinnati).

Milan, Italy, maintains a complete system of medical inspection for school children including examination by a school physician of each child before admission to school; inspection of school buildings and visits to every school once a week by the physician to examine the children and prescribe needed treatment; maintenance of a dispensary open three times a week in every school district; maintenance of clinics where children may receive free examination by specialists and free treatment where they cannot pay. Since 1918, visiting nurses have been employed. The city also maintains special classes for mental defectives, cripples, for children afflicted with trachoma or defects of hearing or sight, and an open air school. Special attention has been given to any possible effects of the war on the health of children whose fathers were in the service. The work of the city is described in a municipal bulletin.

The Michigan Department of Health, Lansing, announces the publication of three numbers of its reprint series which may be obtained upon request. The series includes: "Comparative Studies of Diphtheria Cultures of Loeffler's Medium with the Original Swabs Transported by Mail," by C. C. Young and Minna Crooks; "The Wassermann Test and its Interpretation," by R. L. Kahn, and "The Review of the Hillsdale, Mich., Typhoid Fever Epidemic of 1920," by R. M. Olin.

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Orthopedic Shoes In Disguise

A residential center for students from foreign countries who are students at Columbia University is to be erected on Riverside Drive, New York, near Grant's Tomb. This is the gift of John D. Rockefeller, Jr.

One third of the 25,000 children in the kindergarten and primary grades in New York City who were found to be susceptible to diphtheria were immunized by toxinantitoxin last summer under the auspices of the health section of the New York County Chapter of the American Red Cross working with the Department of Health.

With the establishment of a special heart disease clinic at the Philadelphia General Hospital, work begun by fifty physicians last year has taken another step forward. Cardiac clinics were established during the past year at the Presbyterian, Pennsylvania, and Mount Sinai hospitals, while those at the University and Polyclinic hospitals are of recent date. It is expected that before 1923 twenty more such clinics will be established through the efforts of the Philadelphia Association for the Prevention and Relief of Heart Disease.

A bill has been introduced into the New York assembly which aims to control the sale, prescription and dispensing of drugs in New York City. The new measure requires that physicians must issue drug prescriptions in duplicate, one of which the apothecary is to file with local boards of health in cities of the first class, and in other parts of the state with the state department of health.

A physical examination for every citizen in the county is the plan of the Guilford (North Carolina) County Medical Society. Each physician in the county has agreed to serve at any time for as long a period as may be required. Drs. John T. J. Battle and William M. Jones of Greensboro, and Dr. William J. McAnnally of High Point are members of the main committee. Free clinics for rural districts and health lectures in schools and churches are also phases of the program.

The Wisconsin State Board of Health at its annual meeting at Madison elected the following officers: Dr. William F. Whyte, Madison, president; Dr. Edwin P. Hayes, Eau Claire, vice-president, and Dr. Cornelius A. Harper, Madison, state health officer.

A special section for the study of the problems of industrial safety, both in their national and international aspects, has been created in the International Labor Office, Geneva, in order to fulfil the objects of the International Labor Organization laid down by the Peace Treaty "to protect the worker against sickness, disease and injury arising out of his employment"; and to study the existing systems, practices and devices for eliminating human wastage and discover remediable deficiencies in those systems.

A chain of hospitals for crippled children will be established in the United States and Canada by the Shriners who gave their sanction to the project involving millions of dollars at the convention in Des Moines. Contracts have already been let for the building of hospitals at St. Louis, San Francisco, St. Paul, Shreveport, La., and Montreal. The hospitals will be under the direction of the best orthopedic surgeons available. They will be open to all children under the age of fifteen regardless of race or creed.

The General Conference of the International Labor Organization of the League of Nations in session at Geneva recommended that each member take steps to regulate the employment of children under the age of fourteen in agricultural undertakings during the night in such a way as to ensure to them a period of rest compatible with their physical necessities and consisting of not less than ten consecutive hours; that employment of children between the ages of fourteen and eighteen in agricultural undertakings be regulated so that they have not less than nine consecutive hours of rest.

Film lighting is less dangerous to the eyes of the motion picture actor than ten years ago, say various producers interviewed in the New York *Times*. While the lights are more powerful today than ten years ago, many small spotlights relieve the glare of the Kleiglights and the powerful Cooper-Hewett banks by diffusing the light. These streams of light from various angles neutralize the actinic rays which, if undiffused, are dangerous to the eyes because of their chemical properties. Rehearsals are usually conducted without lights and only for a short time during the actual filming of the scenes are the players' eyes exposed to the intense light. On account of this diffused lighting, American motion picture actors run little risk of being blinded. The method of studio lighting now used in France was discarded in America ten years ago, producers assert.

The complete first-aid training course of the Bureau of Mines was recently given by Mine Safety Car No. 2 to a number of students of the Colorado Agricultural College at Fort Collins and the University of Colorado at Boulder. In Denver 150 city firemen were trained in first-aid. The crew of this car will give first-aid in the oil and lignite fields of Texas during the greater portion of the winter. City firemen in Dallas have recently taken the training.

The National Committee for Mental Hygiene has created a new division to be known as the Division on the Prevention of Delinquency, of which Dr. V. V. Anderson has been made director. An advisory committee has been appointed to assist the director in the development of the work. This undertaking is made possible by a special gift from the Commonwealth Fund.

A bill for the establishment of medical inspection of school children was reported favorably by the parliamentary committee on hygiene. The report states that except in a few large cities school medical inspection is practically unknown in France. It recommends the installation of a thorough system which shall give attention not only to the personal needs of the pupils but also to the sanitary conditions of the buildings, and urges the appointment of school nurses.

The Third International Labor Conference which met at Geneva adopted the following resolution regarding women engaged in agricultural pursuits: "That each member of the International Labor Organization take measures to insure to women wage-earners employed in agricultural undertakings protection before and after childbirth similar to that provided by the Draft Convention adopted by the International Labor Conference at Washington for women employed in industry and commerce, and that such measures should include the right to a period of absence from work before and after childbirth and to a grant of benefit during the said period, provided either out of public funds or by means of a system of insurance."

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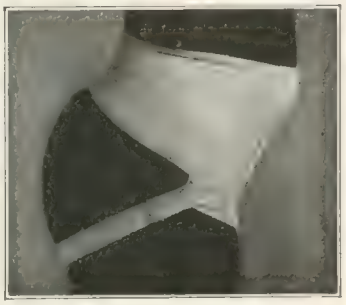

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Children on entering Public School 64, New York City, are tested physically and psychologically to determine to which of the eight types of classes they shall be assigned. Specially gifted children enter "Terman classes," which besides having an enlarged curriculum, enable the child to finish the eight year course in six years; backward children are assigned to smaller classes, while pupils far below average and suspected of mental deficiency are put in separate classes. Provision is also made for neurotic children and for those whose physical weakness or emotional instability requires special handling. The enrollment of the school consists of 3,200 boys.

To care for the large number of epileptics in New York State, the New York State Board of Charities in its annual report renews its recommendation for an institution similar to the Craig Colony for the southern part of the state. A conservative estimate gives the number of epileptics in the state as 20,000. While many of these may never require institutional care the number who do cannot be cared for in the one institution.

Drs. George E. de Schweinitz, Philadelphia, Charles W. Richardson, Washington, D. C., and Fred B. Lund, Boston, have been appointed as the Committee on the Gorgas Memorial of the American Medical Association by President Hubert Work. This appointment was made in compliance with the request from the Gorgas Memorial Institute of Tropical and Preventive Medicine of Panama for the cooperation of the American Medical Association.

The National Safety Council is taking a census of all industrial physicians and surgeons, industrial nurses, and other persons engaged in industrial health work. This is the first attempt that has been made to enumerate the persons engaged in industrial health work. A registration form may be secured from the National Safety Council, 168 North Michigan Avenue, Chicago.

The problem of adequately extending medical service to neglected rural districts was discussed at a meeting of the Massachusetts Committee on Rural Health and Medical Service. The Committee voted to continue its education of the laity as to the importance of improving medical service in the rural districts until such time as the Massachusetts Medical Society is prepared to undertake the improvement of this service.

Women's organizations in Montreal have under consideration a bill for mothers' pensions in the Province of Quebec which may be presented at the legislative session which opened on January 10. Over two years ago the Charity Organizations of Montreal started to maintain a number of widows with families as a practical test of the mothers' pension system, and this was continued up to the spring of this year, when the French, English and Jewish organizations undertook the care of the families of their own races, pending the passage of a mothers' pension law. It is thought that the proposed system will not be much more expensive for the city in the long run than the present plan, under which a large number of children are being cared for in institutions at the rate of $9 to $11 a month for each child. (*Labor Gazette*, Canada.)

A letter to the New York *Times* calls attention to the fact that revolving doors are a distinct menace in times of fire or other disaster. To throw back the doors flat on their frames requires two operations and it is difficult to find a time when they are entirely free from persons. They allow only a limited number to pass through and in times of panic the result will be a pile up and clogging of the doors. With office buildings sometimes containing 14,000 persons, it is imperative to have doors that will allow clearing as rapidly as possible. The preposterousness of revolving doors would be seen if one were to suggest that they be installed in movies or theatres. The writer believes them fire traps in disguise and that steps should be taken immediately to remedy the situation.

Almost a thousand employees of the Davis Coal and Coke Company in West Virginia were recently given mine-rescue and first-aid training by the crew of U. S. Bureau of Mines Car No. 8. In addition, 111 previously-trained employees took the training. Classes were trained at Dartmoor, Benbush, Pierce, Davis, Coketon, Thomas, Kempton and Henry. Every official of the company at the towns named now holds a Bureau of Mines certificate, and 65.5 per cent of the employees are first-aid men.

That modern leprosy, unless its victims have open sores, is not a menace to the community is the contention of Dr. Royal S. Copeland, Health Commissioner of New York City. There are ninety known lepers in New York City at large, though under the strict surveillance of the city health department. Modern leprosy can be acquired only through the blood and is not to be confused with the Biblical disease, says Dr. Copeland. Several of the lepers were present at a meeting of the health department recently at which Dr. William L. Somerset, chief diagnostician, talked on "leprosy."

A Bureau of Municipal Affairs which will act in an advisory capacity to counties, cities and towns in Vermont has been organized within the Department of Political Science of Norwich University, Northfield, Vermont. K. R. B. Flint, professor of Political Science, is Director of the Bureau.

Although familiarity greatly diminishes the sensitiveness to vibration and noise, yet both are unfavorable influences in the workshop, and it is very desirable to avoid them as far as possible.—Amar.

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The Human Factor in Business

The comparatively recent development of class consciousness in the labor group, accompanied by the rise of leaders and the increased power for bargaining, has greatly altered the attitude of the worker or industrial wage earner. The rising tide of their demands was stemmed somewhat in 1914 and the ensuing years by the cry of the naturalists, but as Mr. B. Seebohm Rowntree points out in his recent book, "The Human Factor in Business," since 1914 a profound change has taken place in the psychology of the workers. These men were called from their shops and benches to new tasks; they learned of actual conditions elsewhere; they exchanged ideas with men from the Dominions and America, and it is not strange that they now decline to return until certain minimum requirements are fulfilled.

The bickering over wage rates is but a phase of a general situation, the whole bases of industry are being challenged. Rowntree enumerates the following conditions which must be secured for the workers, no matter what the industrial structure may be:

(1) Earnings sufficient to maintain a reasonable standard of comfort.
(2) Reasonable hours of work.
(3) Reasonable economic security during the whole working life and in old age.
(4) Good working conditions.
(5) A status for the workers suitable to men in a free country in the twentieth century.

Heretofore these conditions have not been secured under the capitalistic system and many demands are made for the overthrow of the present régime and the development of a new order, syndicalism, guild socialism, the nationalization of the means of production, the redistribution of wealth, etc. There are really as many, if not more, suggestions for improvement than there are buses, certainly many confused and confusing issues. The author holds here that through legislation or negotiation among employers and employees, conditions may be made more stable and satisfactory.

The present book is largely a description of the way in which the directors of the Cocoa Works, York, England, have tried to solve the human problems in business administration as to wages, hours, economic security of the workers, working conditions, and joint control.

It is impossible and unnecessary to enumerate the details which describe the regulations of hours, wages, shop conditions, and administrative adjustments. These are all fundamentals with which we are reasonably familiar and which are of interest chiefly as showing the readjustments and plans in an individual shop. The matter of joint control in industry, on the other hand, is one with which our experience is more limited. We think of the great organization and power of trade unions which enter the industrial field usually "to remedy a grievance or to put right an injustice." Now, however, the worker feels that his opinion and desires should be given weight and consideration before industrial warfare is actually declared. This in England has been shown by the development of the Whitley Councils, now numbering over ninety in various trades and establishments.

Longmans, Green & Co., 1921.

Epidemiology and Public Health

Dr. Victor C. Vaughan has compiled a text and reference book for physicians, medical students, and health workers entitled "Epidemiology and Public Health." For forty years or more Dr. Vaughan has been in the front ranks of those fighting communicable diseases both in civil and in military society. This book, the first volume of which, on respiratory infections, has just appeared, is an attempt to compile and organize the experience of "field, laboratory, library and lecture room." Valuable data concerning the history of epidemiology are made available to the populace, in many cases for the first time.

It is impossible here to go into great detail concerning the endless labor and careful judgment which a work of this sort entails. This first volume includes among the respiratory diseases the coryzas, pneumonias, measles, smallpox, chickenpox, diphtheria, etc., giving in each case a description of the disease, its history, prevalence, susceptibility, immunity, transmission, control and bacteriology. The inclusion of influenza, cerebrospinal meningitis, poliomyelitis and glanders is of peculiar contemporary interest.

In the second volume will be included the alimentary, percutaneous, venereal and local infections, while the third volume will be devoted exclusively to public health or the administration of those agencies by which disease may be reduced to a minimum. As Dr. Vaughan points out:

We are inclined to boast that the age of pestilence has passed, but, with a fair acquaintance with the history of epidemics, I dare say that the world has never before known a pestilence more widespread, more intensive and appalling in its progress, or more destructive to life, than the epidemic of influenza which apparently came into being and grew in violence as the World War passed through its final stages. It seemed that Nature gathered together all her strength and demonstrated to man how puny and insignificant he and his forces are, with all his murderous machinery, in the destruction of his fellows. We have not passed beyond the age of pestilence. Much has been done in man's struggle against disease, but greater things are to be done. There has been no armistice signed between men and disease. Influenza, pneumonia, cerebrospinal meningitis, poliomyelitis, and tuberculosis are still using weapons against which our defense is quite inadequate. They employ strategy in approach and attack which we do not fully understand. In this war against epidemic disease we must not permit the elation due to past victories to make us less careful and thorough in preparation for the battles of the future.

C. V. Mosby Company, St. Louis, 1922.

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Dr. Work, President of A. M. A., New Postmaster General

Dr. Hubert Work, president of the American Medical Association, succeeded Will H. Hays as Postmaster General, March 4, following the latter's resignation. Dr. Work was formerly First Assistant Postmaster General.

Dr. Work was graduated from the Medical School of the University of Pennsylvania in 1885, beginning his practice in Greeley, Colo. Later he moved to Pueblo where he became a specialist in mental and nervous diseases. He founded the Woodcroft Hospital for Mental and Nervous Diseases, of which he is director, in 1896. In 1911 he was elected President of the American Medico-Psychological Association.

In addition to professional activities, Dr. Work has been prominent in politics. He was delegate at large from Colorado to the Republican National Convention in 1908, Republican State Chairman from 1912 to 1914, and Republican nominee for United States Senator in 1916.

Manual of Operative Surgery

Seven editions of John Fairbairn Binnie's Operative Surgery have met with a well deserved success. An eighth edition, just at hand, the reviewer feels speaks for itself as being the best book of its kind. The eighth edition is of the same size and form as its predecessors and has been brought up to date in every detail.

P. Blakiston's Son & Co., Philadelphia, 1921.

Health Education and the Nutrition Class

The New York Bureau of Educational Experiments has published the experience with nutrition classes in the city schools in a book entitled "Health Education and the Nutrition Class." Jean Lee Hunt is the author of the descriptive and educational sections, Buford J. Johnson, Ph.D., compiled the studies of height and weight and mental measurements, and Edith M. Lincoln, M.D., has made the report on the physical examinations.

Possibly no other one phase of health work has brought into clearer relief the essential problems of health education and the better appreciation of its scope and place in the general education program. The social background, the character of the school population, the school and home environment, the inauguration and development of a program first in the grammar and then in the primary grades with an increased growth in weight and height resulting, form the major portion of the book. Various interpretations and recommendations for a program of research and general education are deduced.

The children in the particular group studied were of a fairly homogeneous Jewish population removed from the worst slums but in a crowded and unsightly neighborhood. The children selected were first measured for height and weight, those found by the Burk-Boas height-weight age tables to be 7 per cent or more under weight being candidates for enrollment. Five classes were organized during the first year, groups from the seventh, sixth, and first grades; one from the open air classes, and one from the Terman or special classes. For purposes of comparison twenty fifth grade boys were selected and given a program of school feeding.

The nutrition class procedure had been developed by Dr. William R. P. Emerson of Boston with special reference to the standards of the older children. The younger children and their special problems were introduced to insure individual adjustment to school life. Every child was given a careful stripped examination: defects of eyes, teeth, ear, nose and throat were so far as possible corrected. By visits to the homes cooperation was secured there. The average caloric intake was to be two thousand per day with an additional 250 to 300 calories for mid-morning and afternoon lunches. Undue physical action as a factor in producing over-fatigue, and the importance of personal hygiene were particularly emphasized.

E. P. Dutton & Co., New York, 1921.

Confectioner's Raw Materials and Sources

A brief account of the sources of confectioner's raw materials, the methods of manufacture, the chemical constituents, the various adulterants, if any, the modes of detecting such impurities, the more important uses of the materials, and, in some instances, the quantities required for different purposes is to be found in a recent hand book by James Grant, an English food expert and chemical adviser.

The book brings together a type of material formerly available only in very scattered sources. Sufficient elementary chemical information is given to permit the use of the rest of the book intelligently by any one interested in the general field. Emphasis is placed on the importance of cleanliness, light and air, the storage of materials, the careful weighing and measuring of materials, prices, and above all on enthusiasm for the work itself.

Longmans, Green & Co., New York, 1921.

The secret of national health is to be found in the homes of the people.—Florence Nightingale.

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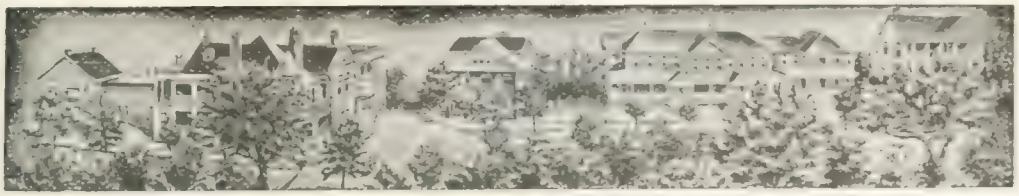

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Army Data on Psychologic Studies

A complete report of the history, methods and results of psychological examining in the United States Army has been recently published in the Memoirs of the National Academy of Sciences, Volume 15, 1921. The report is edited by Lieut. Col. Robert M. Yerkes, Chief of the Division of Psychology, as an official document for the Surgeon General of the Army. It consists of three parts bound in a single volume. Part I, presenting the official history of the development of the service and its activities during the war, is supplemented by reproductions of all of the printed materials devised and used in conducting psychological examinations. Part II includes a complete account of the preparation of methods, their characteristics, and their evaluations as practical procedures. In Part III the results of examining are summarized and fully evaluated.

The entire report may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. It appears in quarto size under the title "Psychological Examining in the United States Army," and includes VI-890 pages.

Medicine for Nurses

The scope of this book, by John Henderson, as stated in the preface, is "to give the nurse a wider knowledge of the course of disease, the main symptoms and treatment with the underlying principles which guide such treatment."

The book is well written, and has sufficient scientific explanation to make it very easily understood. A nurse requiring guidance and learning, but handicapped for time to spend in deeper research, would find this little volume of definite value, as she would obtain a very comprehensive understanding in a short time.

As compared with the textbooks now used in many schools, it lacks a little, in detailed scientific research, which difficulty, however, might be overcome when the study of it would be supplemented by the work of the lecturer. In view of the modern advancement of nursing education the more detailed scientific work seems to be advisable as the student then seems to have an opportunity to fix her mind more definitely on the subject at hand and do better work. The nurse as a technical assistant needs more thorough training.

Edwin Arnold, London, 1921.

Books Received

CHILD WELFARE IN TENNESSEE. An Inquiry by the National Child Labor Committee for the Tennessee Child Welfare Commission. Under the direction of Edward N. Clopper, Ph.D. Paper, 8vo, pp. 616. Printing Department, Tennessee Industrial School, Nashville.

SANITARY LAW AND PRACTICE. By W. Robertson, M.D., and Charles Porter, M.D. Cloth, 8vo, 5th Ed., Rev., pp. 758, illustrated. The Sanitary Publishing Co., Ltd., London, 1921.

TUBERCULOSIS AND HOW TO COMBAT IT. A Book for the Patient. By Francis M. Pottinger, M.D. Cloth, 8vo, pp. 273. C. V. Mosby Company, St. Louis, 1921.

TEXTBOOK OF TRACHEO-BRONCHOSCOPY (Technical and Practical). By Sanitatsrat Dr. M. Mann, senior physician to the department for diseases of the ear, nose and throat in The Municipal Hospital, Dresden-Friedrichstadt. Translated by A. R. Moodie, M.A., M.D., Ch.B. (St. Andr.), F.R.C.S. (Edin.). Cloth, 8vo, pp. 292, illustrated William Wood & Co., New York, 1921.

THE HUMAN MOTOR or The Scientific Foundations of Labour and Industry. By Jules Amar, D.Sc. Cloth, 8vo, pp. 470, illustrated. E. P. Dutton Co., New York, 1920.

THE HUMAN ATMOSPHERE (The Aura). By Walter J. Kilner, B.A., M.B. (Cantab.), M.R.C.P., etc., late electrician to St. Thomas' Hospital, London. Cloth, 8vo, pp. 300, illustrated. E. P. Dutton Co., New York, 1920.

MOTION STUDY FOR THE HANDICAPPED. By Frank B. Gilbreth and Lillian Moller Gilbreth. Cloth, 8vo, pp. 165, illustrated. George Routledge & Sons, Ltd., London, 1920.

CHEMISTRY FOR PUBLIC HEALTH STUDENTS. By E. Gabriel Jones, M.Sc., University of Liverpool. Cloth, 8vo, pp. 244. E. P. Dutton & Co., New York, 1920.

GAS POISONING IN MINING AND OTHER INDUSTRIES. By John Glaister, M.D., and David Dale Logan, M.D. Cloth, 8vo, pp. 471, illustrated. E. & S. Livingstone, Edinburgh, 1914. 12/-.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV | Chicago, April 15, 1922 | Number 4

U. S. Government Health Activities

BY JAMES A. TOBEY, WASHINGTON REPRESENTATIVE, NATIONAL HEALTH COUNCIL

UNCLE SAM is greatly interested in public health, so much so, in fact, that in each of the ten Federal departments there are bureaus which conduct some type of health activity. In all, there are thirty-six divisions of the government which are concerned, directly or indirectly, with some phase of public health. Of course, with many of them, health is a side issue; it is of major interest in only a few instances. The most prominent health agency of the government is, obviously, the Public Health Service. For some incongruous reason, this bureau is in the Treasury Department. The Public Health Service receives the largest appropriation, $10,587,780 for the fiscal year ending June 30, 1922, and has the largest personnel, nearly 23,000 in 1921, most of whom, however, were engaged in hospital services, of any of the bureaus interested in health. The seven divisions of this bureau include Scientific Research, Marine Hospitals and Relief, Domestic Quarantine, Foreign and Insular Quarantine, Personnel and Accounts, Sanitary Reports and Statistics, and Venereal Diseases. Besides the Public Health Service there are also in the Treasury Department the Bureau of Internal Revenue and the Customs Service. The former enforces the anti-narcotic and prohibition laws and the tax on child labor; the latter cooperates with the Department of Agriculture in enforcing the Food and Drugs Act and meat inspection laws.

Another important bureau engaged in health effort is the Children's Bureau in the Department of Labor. The scope of this bureau has recently been greatly increased by the passage in Congress of the Act for the Promotion of the Hygiene and Welfare of Maternity and Infancy. Other bureaus in the Department of Labor are the Women's Bureau which considers the health of women in industry, the Bureau of Labor Statistics which studies industrial hygiene, and the Bureau of Immigration charged with the health of immigrants and the exclusion of diseased persons from the country. In this same connection, the Consular Service of the State Department issues bills of health to vessels clearing for United States ports from foreign lands.

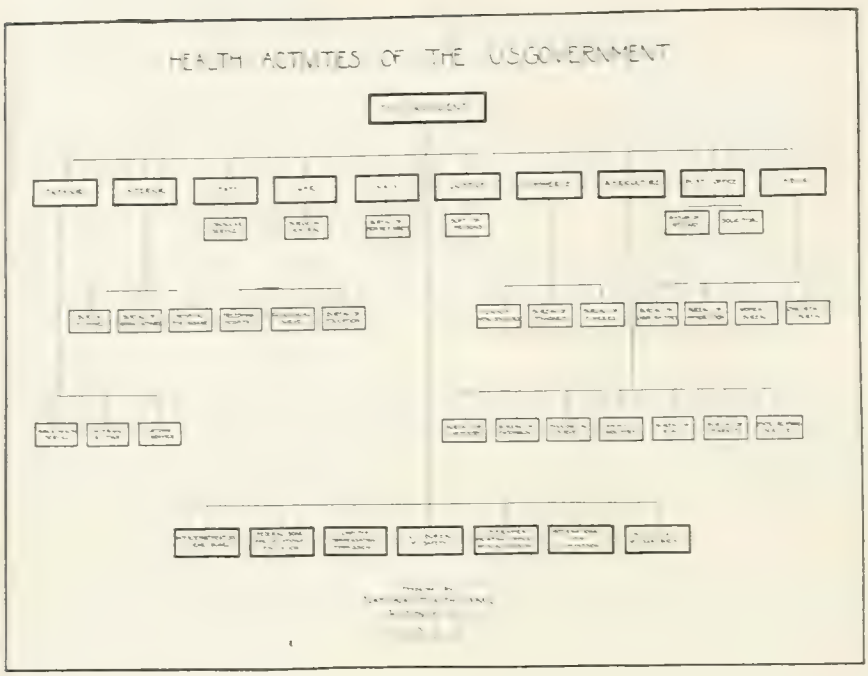
Coordinated Effort

In the Department of Commerce is the Division of Vital Statistics of the Bureau of the Census which conducts the book-keeping of public health. Also in this department is the Bureau of Standards which has issued safety standards, and the Bureau of Fisheries which is responsible for the health of the people of the Pribiloff Islands. This bureau has likewise experimented with fish to assist in malaria control by eradication of mosquito larvae.

The Department of the Interior has several bureaus dealing with health. In the Bureau of Education is the Division of School Hygiene. The Bureau of Education also cares for the health of the natives of Alaska. The Bureau of Indian Affairs has a medical section and oversees the health of all the Indian wards of the government. The Bureau of Mines does much accident prevention, safety and rescue work for miners, while the Geological Survey makes many studies on water supply of interest and value to the sanitary engineer. The Interior Department also controls the Government Hospital for the Insane (St. Elizabeth's) and the Freedmen's Hospital in the District of Columbia.

In the Department of Agriculture we find still more bureaus doing health work. There is the Bureau of Chemistry, conducting the analytical work under the Pure Food and Drugs Act, the Bureau of Animal Industry, coping with animal diseases, many of which affect man, and inspecting meat products in interstate commerce. The Bureau of Entomology studies insects influencing the health of man and the Bureau of Biological Survey, among other things, attempts to eradicate the rat and the plague-carrying ground squirrel. The Bureau of Roads has designed sanitary conveniences for farms and the Bureau of Markets inspects food products. Finally, the States Relations Service has, in the states, a corps of home demonstration agents who instruct persons in home economics, sanitation, health, and hygiene.

In order to complete the Cabinet departments, there may be mentioned the War and Navy Departments, each of which has a medical division, the Department of Justice, whose Superintendent of Prisons is responsible for the health of Federal prisoners and the Post Office Depart-



ment, whose solicitor prosecutes fraudulent advertising of so-called health remedies through the mails, and the Director of Welfare who looks after the health of postal employes.

Besides the departments under cabinet officers there are seven independent departments interested in some aspect of health conservation. The Interdepartmental Social Hygiene Board works to diminish venereal diseases, the United States Veterans' Bureau cares for the mentally and physically disabled ex-soldier, the Federal Board for Vocational Education is engaged in rehabilitation, the Employes Compensation Commission provides medical and surgical treatment for injured government employes, the Interstate Commerce Commission has a Bureau of Safety, the International Joint Commission endeavors to prevent pollution of our boundary waters, and the Government Printing Office has a medical division.

All of these activities are shown graphically on the accompanying chart, which was prepared by the National Health Council. The Washington office of the Council, 411 Eighteenth Street, N. W., Washington, D. C., has also issued comprehensive reports on four of these bureaus, including the Division of Vital Statistics, the Children's Bureau, the Women's Bureau, and the Division of School Hygiene. While it may seem that there is much duplication in the government's health work, this duplication is more apparent than real. The public reached by the various agencies is generally different. Furthermore, there is so much to be done that it would seem that there is room for all these efforts. A certain amount of coordination is, however, essential. It is quite possible that the plans for Federal reorganization as developed by the Smoot-Reavis Committee may include a scheme for more close correlation between the health activities of the government.

On Psychanalysis and Such*

THE present day interest in things psychological at first glance seems inexplicable. In an age so characterized by materialism it appears illogical to find popular interest in the mysteries of the mind as great as was current in the earlier days of religious credulity and metaphysical reason. It is not, however, as contradictory as it sounds, for despite rampant commercialism, Americans at least are as credulous as ever a people were, and as eager for new experiences in untried fields. Therefore when the call of the mysterious through this popularly styled revival of mind mystery took place, the whole people "fell" for it. The tangible hold offered by doctrines of mental healing swept off their feet sane parents who, even when they had allowed the diphtheria bacillus to kill their children, were not willing to admit that the *matter* of diphtheria toxin is more potent than the *mind* full of prayer! It is the mind that counts—material existence and physical ailment are to be swept into the background. So the tabetics and the paralytics continue to limp home from Wednesday night meetings, their canes and their gaits beating a diagnostic tatoo on the pavement. But they are "cured," as they state with positive assurance. If we wonder why they think themselves cured while they still manifest such distinct symptoms as to make diagnosis a mere matter of inspection for a senior medical student we will arrive at the explanation of many of the confusing phenomena of modern medicine.

Therapeutic Nihilism

No one wants to be sick, no one consciously becomes sick, no one imagines himself sick; yet physicians are well aware that fully half the work they are called upon to do is caused by, or at least directly influenced by the mental reaction of the individual patient. Even in organic lesions like heart disease, the symptoms shown by the patient, the disease picture, depends to a great extent on the mental reaction of the patient. Charlatans and fakirs have long played upon the psychic phase of treatment, but physicians have been a little too slow in realizing the potent influence of the patient's mind.

The period of medical practice which was characterized by the use of very few drugs is known as the age of therapeutic nihilism, which means no treatment; but even therapeutic nihilism must be considered as a step in advance, for no treatment is certainly a marked improvement over the shotgun prescription which carried all drugs in the vague hope that some one of them would hit the bull's eye.

Very few diseases are cured by drugs; medicines at the best or worst are used only as first assistants to the great healer—nature. More recently the development of the science of bacteriology and the principles of immunity have added to the physician's store of remedies new and

*The second of a series of articles on "Popular Medical Misconceptions," beginning with the March issue of THE NATION'S HEALTH.

specific vaccines, antitoxins, serums; and these have given new hope to treatment—hope of specific cures in given diseases by specific remedies. That in many instances this hope has not been realized does not in the least detract from the importance or value of the tremendous advances in knowledge which have been made possible by this new line of inquiry.

Tangible Proofs of Service

While the age of therapeutic nihilism marked a great advance over previous periods of polypharmacy, and the more recent biological and chemical tendencies are certainly in the right direction, both periods are strangely lacking in attention to the mental makeup of the patient. Drugs were taken away, the old shelf was cleared, but nothing was put back in its place. And patients must have medicines—else what's a doctor for? The average patient is much more interested in getting something to cure his ills than in being told that his ills are such as not to require medicines. This was well illustrated in the case of a rather harassed, middle-aged man with chronic deforming arthritis, badly situated financially, who on the occasion of a visit to his physician's home, sought advice, mainly concerning the rehabilitation of his business status. At the close of the visit he asked the amount of the fee and, on being told that a fee for business advice was entirely unnecessary, he became indignant, opened his purse, and extracted a dollar bill which he insisted was the physician's just deserts. A few weeks later he was suffering from a severe attack of arthritis. The same physician attended him and left two prescriptions. The patient pulled his cash from under his pillow and extracted, this time, two dollars. Knowing the very impoverished condition of the patient, and appreciating the delicacy of his feelings, the physician remonstrated about taking what must have been a fair share of his total capital; but the patient insisted: "Well, Doc, I gave you a dollar the other night when you did not give me a prescription; certainly two prescriptions are worth two dollars." (This was before prohibition days).

It is well enough to say that medicines should be used only when necessary, and that patients should not be humored with placebos. A very sound doctrine that, but one showing a fundamental perversion of the idea of medical art. Deprived of all music and stage setting, the art of practice of medicine consists in getting patients well. Admit that correct diagnosis comes first of course, that nature does the work, anyhow, and no one can argue the question from an academic point of view. But, if you yourself or your children have ever been sick, your interest lies in getting well, and you want the doctor who in your opinion, will cure you. If you have unusual confidence in him, you will believe that medicines are not necessary, but on the side you are apt to take a dose of castor oil, anyhow. If your confidence is not one hundred per cent strong and Nature lags a bit, you want to have objective proof of your improvement. It is regrettably true that some patients shop from physician to physician, merely because they lack the common sense to realize that one good doctor is worth a dozen, good or bad, and they have not the confidence in medical science which is necessary to successful therapeutic effort. So they run the gamut, and at the end of a certain time one of two things happens: either they are well,—"cured" by physician number twenty-three,—or they are still sick, their minds are in a turmoil of doubt and perplexity, and they are "willing to try anything once." They have tried legitimate medicine, and it failed to cure; next they go to Christian Science, or they are psychanalyzed, and read Freud, the latest and most popular lure to the intellectual.

The Lure of the Intellectual

This explanation accounts, we believe, for a certain number of individuals who jump to *isms* and are so fascinated by the new thought as to forget their ills. It does not account for the large number of persons who flock to the "study" of new things as an intellectual pastime. Of the newer attractions for the intellectual, psychanalysis offers most. Why? First because we are living in a psychological age. What caused and what followed the destruction of civilization between 1914-1918 has caused many individuals to ponder over thoughts never before even suspected. O'Shaughnessy, V.C., came from the front with ideas which O'Shaughnessy Irish farmer never had. Then too, the war brought a taste for unheard of, new experiences, and the search for new experiences is always a psychological motive of prime importance. Add to all this, dissatisfaction with the unwillingness of the average physician to grasp the significance of mental reactions in disease—and, in our opinion, you have a formula for the present widespread interest in psychanalysis and other psychological matters.

Many persons talk about psychanalysis and know not whereof they speak. They know something about repressions, about dream interpretations, about complexes; and they know also—indeed they do—that psychanalysis bases much on sex. They know that a fellow named Freud started the ball rolling, some are Freudians, some are Adlerians, and some are Jungians. (One might be facetious and talk of the female followers of Jung as Jungfraus). Much of the knowledge of most of the followers of psychanalysis is half-baked. The fundamentals of the Freudian philosophy are profound, the ramifications intricate, and it requires deep study of psychology to appreciate the relative value of the newer schools of thought. And if in general a little knowledge is a dangerous thing, a smattering of psychanalysis is like playing with poisonous gases, which, neither seen nor smelt, do untold damage before their presence is suspected.

Well, what are we going to do about it? The answer seems fairly clear. First recognize the widespread general interest in it and learn it well. Sift the good from the bad, the truth from the mystery in which it is veiled, and make it by our own efforts common property. Doctors should be ready to discuss the matter and should know enough to talk straight from the shoulder. They must also know enough of the methods of diagnostic psychology to be able to combat what is evil in present day practice of psychanalysis. The modern novels are filled with Freudian complexes, often unnecessarily complex.

The Hidden Complex

The doctrine of mental or even physical ailments being due to a conflict in the subconscious mind, resulting from repression of some desire, is a fundamentally sound doctrine and can neither be laughed nor sneered away from the thought or practice of modern medicine. The Freudian thesis that practically all such conflicts are based on sex repressions is not generally accepted by thoughtful psychologists. Important though the rôle of sex may be in the production of nervous states, numerous other repressions come into play on an entirely different basis. The woman who subconsciously desires life in a big town with the glamor of the theaters, the opera, the libraries, but whom circumstances force into drudgery on a farm, is not enough to de-

velop headaches, gastric distress, backaches, just exactly as the soldier in the trenches, finding life intolerable, developed the war neurosis, wrongly termed "shell shock." The unsuccessful business men whose income is less than his tastes and the demands of his family require, in time may become a nervous dyspeptic. The constant conflict between life as it is, and life as we would have it, does not always find expression in anarchistic explosions. Most of us are compelled to carry on as best we can, but the effort to effect a compromise may result in a neurosis or psychoneurosis. Sex may or may not be one of the elements in the conflict.

The Mind and Body

When in such a state of psychoneurosis, a full expression of such troubles with a sympathetic listener is often the best cure, indeed, often the only cure. The psychanalyst takes months, the doctor with a sense of psychological values may take only a single visit to discover the cause of the trouble, and usually the sensitive doctor can cure the condition rather quickly. We have recently seen a young woman with marked nausea and vomiting who was tremendously distressed by her week of illness. Only a half hour was taken to discover that the stomach symptoms were the result of some mental disturbance, and when at the end of the hour the young lady told of her interest in a man who apparently was not interested in her, the stomach disturbance disappeared — and remained absent. Though this was a case of man and woman, there was no sex element in it beyond the sex element in all wooings; there were no suppressed sex desires beyond the desire of the healthy female for marriage. The danger of psychanalysis lies in introducing into such a case a sex element which vulgarizes the situation, and is completely unnecessary for a straightforward explanation.

Other "cases" might be cited to emphasize the point that in neurosis conflicts, our suppressed desire need bear no relation to sex or to the other man's wife! A woman had seen many "professors" for a group of symptoms referable to her stomach and intestines, and no two of the busy practitioners had agreed on diagnosis. She had been told she had gall-stones, ulcer of the stomach, that there was nothing the matter with her, and had finally been sent to the office of a young practitioner, whose assets were a good education and plenty of time. Careful study showed no organic lesion. The condition was evidently the result of a serious shock to her nervous system which found expression in that most susceptible of all organs, the stomach.

A little plain detective work revealed to the young medical man that all the symptoms had followed the death of the patient's only child from diphtheria. Diphtheria deaths are not always necessary. The patient accused herself, the neurosis developed. She then became the object of sympathy, and her self-directed accusations were relegated to the background by the care and attention now lavished upon her, her pains and aches, which were bad enough, but not half as bad as the thoughts of her dead child. When the disturbing suppression was explained to her, and proper treatment instituted, she actually become well over night— and the mother of another healthy child within the year.

A word is necessary about dream analysis, the weird and unusual procedure of much in psychanalysis. Dreams, occurring as they do in the interval between sleep and consciousness, represent the only memory of this state. Some individuals dream not at all, others dream vividly of things pleasant and unpleasant.

Dreams have a definite basis in past experience, usually a conscious though frequently forgotten experience, and not very infrequently they are the result of a definite disturbance in the body itself. In psychanalysis dreams are interpreted usually on the basis of remote and far fetched causes, practically always on a sex basis. A woman, scared by newspaper headlines, dreams she is being pursued by a burglar, but the dream is held to be erotic and to carry significance far beyond the poor woman's own ideas. A young girl, no matter what her dreams may be, is, according to psychanalytic interpretation, the victim of sex. We cannot help wondering how far such methods would go in interpreting the dreams in the case of a man who invariably experienced the most vivid and most disturbing nocturnal conflicts whenever he ate cheese, but whose dreams entirely disappeared after his chronically inflamed appendix was removed. The night period of relaxation often allows an expression of suppressed libido, but it takes a wide stretch of a most fertile imagination to refer all dreams to a sex basis, and in many instances such reference must be distinctly harmful.

The object of this plain spoken discussion is simple enough. "The truth will make you free" is the motto of a big American University; let us divest certain tendencies of modern thought of popular misconceptions. To do this we must be analytical and critical. Neither the medical nor the lay mind can afford to accept at face value all that is offered. Let us accept what is of proved value and reject the vague, the mysterious, the plainly dishonest, the dangerous; then, sooner or later, the misguided will see the light and legitimate therapy will be enabled to utilize all that is good.

Army Camps Plan to Train This Summer

The War Department has under advisement the training of 227,000 men in military camps this summer, according to a special dispatch to the New York *Times*. Plans contingent on the appropriation by Congress provide that approximately 160,000 members of the National Guard, 30,000 reserve officers and specialists, 10,000 student members of the Reserve Officers' Training Corps, and 27,000 civilians will receive training.

The National Guard troops are to be trained in their own respective states, provided suitable Federal or state encampments are available. Camps of fifteen days' duration will be held for the National Guard States comprising each army corps area.

Most of the training for the 30,000 organized reserves, 10,000 student members of the Reserve Officers' Training Corps and the 27,000 civilians will be conducted at Fort Ethan Allen, Vt.; Camp Devens, Mass.; Plattsburg Barracks, N. Y.; Camp Dix, N. J.; Camp Meade, Md.; Camp Bragg, N. C.; Camp Benning, Ga.; Camp McClellan, Ala.; Camp Knox, Ky.; Camp Custer, Mich.; Camp Grant, Ill.; Fort Snelling, Minn.; Camp Funston, Kansas; Camp Travis, Texas; Fort Logan, Col.; Camp Lewis, Wash.; Presidio of San Francisco, and Presidio of Monterey, Cal. Other camps and stations of the regular army will be utilized to a lesser extent.

Applications for attendance at citizens' military training camps will be accepted at corps area headquarters after April 1. Arrangements are based on 3,000 of these citizens in the camps of each of the nine corps areas.

Camps for the Reserve Officers' Training Corps will be especially arranged to conduct the training required for the units of the several branches of the service.

The Physician As An Instructor In Health*

By Training and Contact the Doctor is by all Odds the Best Equipped Health Agent

By SIR NAPIER BURNETT, K.B.E., M.D., Chief Executive Officer, British Red Cross Society, London, Eng.

WIDESPREAD as is disease in its many forms throughout the world, there is something else that, fortunately, is even more general than disease, namely, health. Too long has health been interesting to individuals only when there has been a departure from the normal, as by the onset of some phase of disease. More recently health has come to be recognized as a distinct entity in itself, a positive state that can be preserved and maintained, not merely the antithesis of disease.

The general public today has just enough knowledge of personal hygiene to excite its interest and desire for more. People are more anxious to hold on to health than at any former time. Health notes in the daily and weekly press are eagerly read by great numbers. What is needed and what is being asked for in a measure is a fuller knowledge of the principles of physiology applied to the maintenance of personal health. Because of his knowledge and his right of entry into the homes of the people, the general practitioner of medicine is the individual best equipped of all the health agencies to render this service, representing as he does the one point of contact between scientific research and popular need.

Preventive medicine in the popular mind has long been interpreted as restricted in large measure to such matters as general sanitation, a pure water supply, efficient drainage, removal of public nuisances and the spread of infectious diseases, in other words, to the prevention of certain diseases as they affect the general community as a whole. This definition of public health as applied to the functions of the Sanitary committees in our system of local government has been largely responsible for retarding the progress of the prevention of disease in the individual man, woman, and child, which has been described as "the real focal point of the problem," namely, the application to the individual of the medical knowledge which we already possess for the preservation of health and the arrest of the beginnings of disease.

*Delivered as an address before the Glasgow University Medical Society.

Only by utilizing the general practitioner as a health agent can the public receive the health information it needs and desires. When it is realized that disease in its preventive stages rarely comes to the notice of health officers, the rôle of the doctor assumes great importance.

In order to further preventive medicine in Great Britain, the author urges that medical students become instructors in health as well as physicians in disease, that the Council of the British Medical Association inaugurate a constructive disease prevention policy, and that the medical profession assume the responsibility of maintaining the nation's health, not leaving it entirely in the hands of voluntary agencies and public health officials.

Sir George Newman, Chief Medical Officer, Ministry of Health, in his Priestly Memorial Lecture, 1920, has lucidly outlined the outstanding features of a survey of the health conditions existing in this country. His deductions were based on data obtained from school medical inspection, national health insurance work, and the results obtained in the examination of recruits by the Ministry of National Service during the last two years of the war.

Speaking of this evidence, Newman says:

As a result of ten years of school medical inspection, we know that not less than a million children of school age are so physically or mentally retarded, defective, or diseased, as to be unable to derive reasonable benefit from the education which the State provides.

From the insurance returns for 1914-1916 we know that more than half the insured persons in England and Wales claim and receive medical treatment every year and that among these persons alone there was upwards of fourteen million weeks of reported sickness per annum. This is equal to a loss of working time amounting to 270,000 years per annum, all of it due to sickness and most of it due to preventable sickness.

These figures represent an enormous economic loss to the Nation, and since we know that much of this sickness and disease is preventable, it is important that the attention of the medical profession should be increasingly directed on a national effort towards the solution of the problem. The prevention of disease must no longer be regarded as the sole province of municipal medical officers, for there is much disease, especially in its earlier phases, that never comes within the knowledge of the official medical officer. In fact, from his official position, the medical officer's knowledge of the prevalence of disease is not obtained except in the form of the notification of infectious diseases, of disease in epidemic form, and by means of registration of diseases that have terminated fatally, and from information gathered by the health visitors. Of the great number of sick persons daily attended by the family physicians this official obviously can have no definite information. Therefore, it seems reasonable to suggest that if real progress is to be made in eradicating much of the preventable disease, a much larger section of the medical profession will have to become interested in this work than is the case today.

"The chief hindrance to the practice of prevention is lack of knowledge on the part of the public," says Newman in his lecture mentioned above. Briefly then, the position is that on the one hand we possess, as a result of scientific research, a large mass of accumulated knowledge in medicine and surgery, dealing with the nature and causation of disease, while on the other hand there are a great number of people who in their ignorance become the victims of avoidable disease.

Two illustrations will serve to show how important results were obtained in the prevention of disease. It is well known that in the South African War Great Britain lost more men from sickness than by bullet, whereas in the recent war sickness and disease were responsible for a much lower percentage of deaths than in any previous war. This favorable result was obtained in large measure by the ar-

rangements made by the Army Medical Service for the maintenance of health and the prevention of disease. Smallpox was prevented by vaccination; inoculation against typhoid fever produced amazing results; tetanus was prevented by the free use of serum.

Health was maintained by an adequate and carefully selected dietary; suitable clothing was supplied; efficient sanitary arrangements were provided; and a clean water supply was available. Bathing facilities, rest camps, regulated exercise, were all arranged with the one object of maintaining a high standard of health among the troops. In short, knowledge was available and made use of for the prevention of disease.

Knowledge Prevents Disease

The second illustration of the effect of knowledge applied towards the prevention of disease refers to infant mortality. In 1900 in this country when there were practically no infant welfare centers or health visitors, the infant mortality rate was 154 per one thousand births in the first twelve months of life. In 1914, when the welfare centers, mostly voluntary, numbered 250, the infant mortality rate was 105. In 1919 the death rate fell to 80 per thousand, while the number of centers increased to 1,412. The lowest point yet recorded in infant mortality rates was in 1920, when the figure for the Country was 80 per one thousand births, and the welfare centers numbered approximately two thousand. There were other factors at work, of course, in producing this great saving of infant life, but it is generally admitted that the main factor was the valuable instruction in preventive medicine given at these welfare centers.

If such valuable results can be obtained in one section, much can be done in other directions by the adoption of similar ideas. Medical men are now and have for some time been engaged, in a small measure, in the practice of preventive medicine. This does not refer to the personal consultation by the individual seeking advice or to the important research work carried out in the hospital which gives us the knowledge of the nature of disease upon which the practice of preventive medicine is founded, but rather to the other aspect of prevention, namely, imparting instruction in first aid and home nursing, school medical inspection, and instruction given at welfare centers.

Who is to impart this requisite knowledge is the next question. In America there is a large amount of literature in the form of leaflets and booklets being issued monthly to the general public from the offices of an ever increasing number of health agencies or societies, all dealing with some aspect of the prevention of disease and all seeking to instruct the individual in the matter of how to maintain health and avoid disease. Their great watchwords are "Health is Wealth" and "Health is purchasable." This health literature reaches me regularly, and from a perusal of it, I can come to no other conclusion than that it must in due course exercise a considerable influence on the prevention of disease.

Again, this popular health propaganda is not confined to voluntary agencies, but is also being taken up as a commercial proposition. One life insurance corporation was persuaded some years ago by one of the directors to employ some medical men to draw up a few leaflets setting out in popular language certain elementary facts about health and the prevention of disease. This form of instruction became so popular that today the company is the largest insurance corporation in the world, having more than sixteen million policyholders. But not only did the propaganda prove immensely popular, but it also proved, and continues to do so, the most financially sound investment the company ever made. The company now possesses a large staff of medical officers, fully trained nursing service, and medical statisticians.

The following quotation relates to their visiting nurse service: "The service today covers over ten million persons in the United States and Canada. In June, 1909, 730 visits were made to policyholders. In 1919, over one million visits were made."

Last year over £100,000 ($500,000) was spent on providing a fully trained nursing service absolutely free to their policyholders.

"Health Work Pays" Slogan

The following statement concludes this insurance society's annual report for 1920:

The outstanding fact in the record for 1920 is that *Health Work Pays*, whether conducted by governmental or by private bodies. It means longer and happier lives for the great mass of the population engaged in the world's work. The health experience of the year 1920 is but another confirmation of the wisdom of the policy of life insurance health conservation work. The low mortality record in 1920 means that 38,000 fewer deaths occurred among our industrial policyholders than if the health conditions of 1911 had prevailed, and 13,000 fewer deaths than if the death rate of 1919 had occurred. Health work which brings such results is worth more than it costs, and this demonstration should encourage other agencies, both public and private, to extend their activities in the health field.

The third incident worthy of attention is a comparatively new movement taking place in a few of the medical schools in America. Men are graduating as Hygienic or Sanitary Engineers after taking a partial course in the curriculum of medicine with special study in the direction of prevention of disease. This is an unfortunate movement, and it is to be hoped will not take root in this country. Surely it is incumbent on anyone who seeks to practice the doctrine of preventive medicine to be equipped by a complete study of the full range of medicine in order that he may absorb the whole extent of available knowledge regarding the nature of disease. In short, he must know about disease before he is competent to preach its prevention.

Preventive medicine has been eloquently preached during recent years, but nearly always as something in the abstract. But until the great force hitherto little used in this direction, namely, the general practitioner of medicine, is made use of, we will fail to make the progress that we ought to make with preventive medicine in the concrete, for he, of all others, is the individual who enters into close relationship with people.

Medicine Trains for Health

First of all, the training which a physician receives gives him adequate equipment as a teacher of health. The medical curriculum is of necessity divided into so many compartments or "years" of study. The first year of study, dealing with biology, physics and chemistry, subjects which the average students find so irksome, has the dual purpose of being in the first place disciplinary, that is, to instruct the mind in scientific method, and secondly to reveal important general principles applicable to the later studies.

The second year deals with anatomy, histology, and physiology,—structure and function of the normal,—in other words, with the foundations upon which is based the human machine for the maintenance of what we regard as health. The remaining three years are occupied in studying the *nature of disease* and its treatment. Such a course of study is intended to furnish the future medical practitioner with the requisite

knowledge for the diagnosis and treatment of curative medicine. This training likewise equips him for taking a lively interest in preventive medicine, for, as Newman has expressed it, "the foundations of preventive medicine are built upon a body of knowledge concerning the *nature of disease.*"

In actual practice, the medical practitioner equipped with the requisite knowledge for dealing not only with "cure" but also with "prevention," in the main interprets his duties as lying along the line of the treatment of sick people,—that is, he waits for employment by people when they become his patients,—namely, people who have lost their hold on health. In other words, the doctor today relies on the apostolic injunction that "the 'whole' need not a physician but those who are sick." This doctrine in the light of modern knowledge requires a fresh interpretation, namely, the "whole" need the physician of health and the "sick" the physician of disease. From the nature of his training, the general practitioner of today embodies the dual capacity of being able to instruct his *clients* how they can retain their health as well as treat his *patients* who suffer from disease.

The subject of the doctor as a teacher of preventive medicine cannot be adequately discussed without reference to finance. Speaking generally, it will be admitted that the doctor derives his income from his "patients," those who consult him in their hour of sickness, at least such was the case until the advent of the National Health Insurance Act, and obviously his income fluctuated with the prevalence or absence of disease.

Before the insurance act came into force, the trend of both central and local legislation was to encroach upon the income of the practitioner by removing some of his patients and placing them in charge of the full time public health officials, and this tendency has been even more accentuated of recent years, so that today when the practitioner diagnoses his patient as suffering from any of the notifiable infectious diseases the patient is likely to be removed to the Infectious Diseases Hospital, and there be treated by the municipal doctor. Again, the School Medical Service now sanctions treatment of certain child ailments at the school clinics. Tuberculosis patients go to the Municipal Tuberculosis Dispensary or Sanatorium. Obstetric cases are now seeking admittance to the hospitals in increasing numbers.

I am not criticising this tendency of recent legislation. All I desire to point out is that these are many incursions into what the practitioner hitherto regarded as his province and from which he derived part of his income. But with the coming of the insurance act, the practitioner's income has become more stabilized. He now derives a considerable proportion of his income on the basis of a per capita rate for the number of people on his panel list, with the result that he is paid at present by people who are well and also by those who consult him for disease.

Supposing a doctor has two thousand persons on his panel list. He may actually be consulted by and treat anywhere from eight to ten hundred of these, the remaining ten to twelve hundred who are well and for whom he also received payment, he never sees. In other words, he receives more of his income from "well" people than from the sick. Hence the comparatively low rate of the capitation grant. This is the basis of any insurance scheme.

Clients and Patients

It is not an insuperable difficulty to devise some scheme whereby the panel practitioner might receive one rate of remuneration for his services to his clients who are not ill and who desire to be instructed in matters pertaining to health, and another rate for the patients who consult him.

There are doubtless many families whose income excludes them from the benefits of the National Health Insurance Act but who would readily agree to pay a fixed sum per annum, as was formerly the custom in some parts of Scotland, to the family medical attendant to look after them both in health and in sickness,—in short, to be the health instructor to the family. This system now exists in Sweden, and the rate of remuneration is from £4 to £5 per family.

In conclusion, I appeal to three different authorities, first to medical students to consider the views briefly outlined and to seek to equip themselves with the knowledge that will enable them to become teachers of health as well as physicians for disease. Secondly, I would appeal to the Council of the British Medical Association to take up a constructive and forward policy in the matter of the prevention of disease.

The health of the Nation is primarily the concern of the medical profession, and preventive medicine in the fullest meaning of the term should not be left entirely to voluntary agencies and public health officials for it deeply concerns the interest of the general practitioner as the agent who secures the closest contact with the individual man, woman, and child.

The wide field of Industrial Hygiene, for example, has scarcely been touched in this country and immense results might be secured through a forward policy inaugurated by the British Medical Association in a campaign for the attention of employers to the doctrine that the health of the worker means wealth, not only to the employees, but also to the employer. The inscription over the gates of one large factory in America is "Work here and live long," meaning that within the "works" are to be found the best possible hygienic conditions. Not only is an ambulance and first aid station established in the factory under the control of a resident nurse, but medical officers are retained by the firm to supervise the health conditions of the workers, and once a year each worker is medically examined, and thus the early signs of disease are detected and treated.

Thirdly, I would appeal to those in authority in medical schools for some opportunity to be given either just before or after the final examination in medicine whereby students could attend a short course of lectures on what might be called Social Medicine or Advanced Hygiene, in order that they, the future practitioners, might be the better equipped for their work as health instructors.

Mothers Receive Protection in France

In France the national budget for 1921 made appropriations or maternity and infant welfare subsidies to departments and communes taking measures to bring about an increase in the birth rate, it being the same amount as in 1920, 3,000,000 francs. Assistance is also given to women in confinement and to nursing mothers, with other appropriations connected with maternity and infant welfare. The total exceeds that of last year for the same period by 15,050,000 francs.

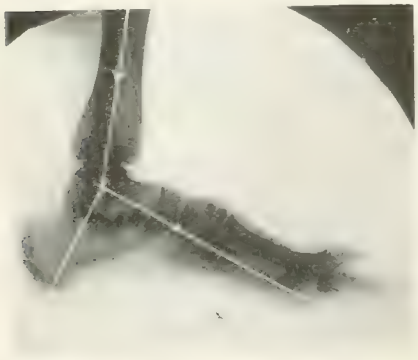
In an effort to further the development of juvenile court standards, the Children's Bureau, U. S. Department of Labor, is publishing a series of articles on the subject. A report just issued by the Bureau is that of Dr. William Healy, Director of the Judge Baker Foundation, Boston, who writes on "The Practical Value of Scientific Study of Juvenile Delinquents."

Common Foot Troubles As Induced by Shoes

By RALPH B. BETTMAN, M.D., F.A.C.S., Chicago, Ill.

CIVILIZATION frequently forces the human body to adapt itself to usages detrimental to the functioning of its organs and members. Especially is this true in the case of the foot. From early childhood there is a continuous abuse of the foot. Sometimes it is the abnormal function that produces the noxious results, in other cases the shoes. The city dweller treads continually on hard, unyielding surfaces. Whether this be street, sidewalk, or floors, the ground walked upon takes up none of the jar. While naturally constructed to diminish shocks under conditions of modern life the foot is put to great additional work. The detrimental effect of hard pavements is generally recognized, and no good horseman will allow his horse to gallop or trot on cement or asphalt We have learned to soften the footfall by wearing rubber heels, which protect the foot and thereby abolish much foot strain. Certain industrial positions require individuals to remain standing over periods of many hours. Standing is a continuous muscle strain and therefore more fatiguing than walking, which may require more actual muscle work, but which is intermittent.

Sometimes because of economic conditions people are forced to be on their feet when they are ill and ought to be in bed. In illness the ligaments or muscles of the foot are much less apt to stand the strain. Industrial physicians and military surgeons need to bear this in mind. Both see cases where, because of certain economizing or other reasons, individuals who are in a weakened condition are compelled to work and stand many hours. The result often is a yielding of the structures that hold up the arch in the foot. This leads to a "weak foot" which, unless carefully and sensibly treated, results in a "flat foot" with its concomitant symptoms.



X-ray of normal foot, showing direction of weight distribution. Note the more direct line from the ankle joint to the heel, demonstrating that the heel is the chief weight-bearing point.

Contributing Conditions

Poorly fitting socks and stockings and webbed shoe linings cause much discomfort and augment foot trouble. The "socks of sister Sue" .were of serious import on the march, as many a doughboy will recall. The shaggy external appearance of our "trench boot" may have caused some slight annoyance when trying to "doll up" to impress "a jolie mademoiselle," but the smooth unlined inner surfaces made the thirty and forty kilometre hikes possible.

X-ray of same foot wearing a high-heeled slipper. Note the distortion of weight distribution. The heel here carries very little of the load, while the front of the foot (the transverse arch) must bear the brunt of the burden.

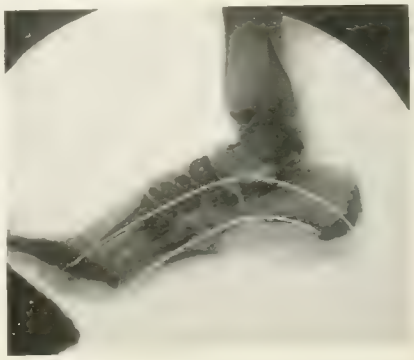
Rubber overshoes, because of their impermeability, interfere with the natural evaporation from the skin of the foot and, if worn too long, react upon the sweat glands.

We now come to the ills produced by the shoe itself. Many of the ills are due to the poor fit of a well constructed shoe, many to the construction of the shoe itself. Of all the enemies of the foot, the czar, Style, stands out preeminently. In order to be in style the average person, otherwise intelligent, will gladly bear the pain of illfitting pointed shoes. We ridicule the Chinese custom of binding women's feet, but inconsistently tolerate styles that are almost as unnatural and injurious. A narrow foot, small in size, is the desideratum. To accomplish this a normal foot will be pushed and squeezed into a last several sizes too small.

Many shoes are constructed wrongly from heel to toe and from sole to upper. The leather may be too impermeable. A certain amount of air should reach the skin of the foot. Rubber shoes cause higher sensitiveness from an increased perspiration. Patent leather shoes, also, if worn too steadily, make the feet ache. A heel helps the walker to lift his weight in making a step. A high heel however, instead of helping, greatly increases the work of the foot In the first place a high heel throws the shock of the weight from the rear of the foot, where it belongs, to the point of the foot, where it does not belong. The heel of the human foot is composed of a large heavy bone covered by a cushion of fat and it is so constructed in order to break the blow of the step. However, in a high heeled shoe, the ball of the foot bears the brunt of the step.

In the second place, high heels instead of having a broad tread surface have a very small one, so that the weight is thrown on the wrong part of the foot. The foot instead of being solidly and firmly on the ground is wobbly and unstable, which means that the muscles which hold the foot must work many times as hard to keep the ankle from turning at every step.

Another ill in our modern shoe in many instances may lurk in the "shank" or instep of the shoe. Some firms advertise a flexible shank, others a rigid shank. The main essential in either case is not to have the shank so wide that the inner side of the instep receives no support below to counterbalance the downward pressure from the lacings above.



The longitudinal arch. The inner and outer longitudinal arches are sketched into this x-ray photograph of a normal foot. Note the flattened external arch, which bears the weight, and the high internal arch, which gives the foot its elasticity. This picture was taken with the foot tilted slightly out of a direct lateral position.

The front part of the shoe may be mechanically at fault in several ways. Usually the shoe is long enough so that the toes do not press against the tip at every step. Style has decreed for

Showing the comparative outlines of shoes conforming to the normal outlines of the foot and the hampering requirements of a dress slipper.

a pointed shoe. In order to adapt itself to the average pointed shoe the natural shape of the foot must be altered. The little toe is pressed toward the midline; the big toe, instead of being parallel with the foot, is also bent towards the midline. Normally all five toes point straight ahead. In the shoe the little toe is deflected medialwards, the fourth toe slightly, the middle and the second toe may point straight ahead, while the big toe is again turned medialwards.

The foot in a natural gait points almost straight ahead, like medium step or something like a moderate pigeon toe. This is not considered elegant; "out-toeing" is supposed to be more graceful. To produce this the shoe is flared or turned so that the out-toeing effect is brought about. Another harmful influence is the purposeful twist in the last so that the foot is slightly rotated, lifting the outer margin upwards and allowing the arch to drop a very small amount. This is done by manufacturers so as to prevent the shoe from "running over" on its outer border. In this way the weight is thrown from the outer margin of the foot, where it naturally belongs, to the inner margin of the foot.

A shoe may possess one or all of these defects. These errors in construction for the most part are taken care of by the intrinsic medium of the foot. However, to do this the foot must be continually adapting itself to unnatural conditions. Sooner or later some condition such as fatigue and a twist of the ankle may be superadded to the burden the foot already bears and an unpleasant train of weeks is precipitated. It is now in order to discuss a few of the sequala of poor shoes.

Common Foot Troubles

Corns.—The little toe, being small, weak, and unprotected, is the first part of the foot to suffer in the endeavor to force a "D" foot into an "A" last. The pressure is not constant, but is augmented by stepping on, and diminished by lifting the foot, resulting in a rubbing motion as well as pressure. Luckily, the skin reacts to the stimulation, and instead of being worn off and causing an ulcer, forms its own protection. This protection or callus increases in size and, extending downward deeper into the skin, brings about the exquisitely agonizing condition known as a corn. Remove the cause for the corns and the corns themselves will disappear

The imprint of a normal foot

with a speed and sureness equal to the claims of any "corn cure" ads. Renew the cause, and the corns very shortly will also re-appear.

However, the corn does more than just ache and instigate profanity and homicidal tendencies in crowded street cars and elevateds. Each step is painful. Therefore, at each step the voluntary or involuntary effort made to tread on a part of the foot which will not increase the pressure and friction against the corn involves an abnormal use of the foot, increased stress, and eventually, pathologic changes.

Bunions.—A somewhat similar proceding occurs on the opposite side of the foot, that is, the big toe side. The big toe is crowded over medialward. The phalangic-metatarsal joint becomes more prominent. Friction over this joint causes irritation over the metatarsal head. There are, of course, underlying factors which bring about bunion formation such as congenital enlargements of the head of the first metatarsal, congenital deflection, sesamoid bones, etc. There is no doubt, however, that the tendency to this condition is augmented by im-

Third degree flat foot. In a condition like this the bony symmetry of the foot is destroyed. Pains and aches and many ills are in its train.

proper shoes, and it must be realized that the shoe, at least as far as symptoms are concerned, is a factor of the greatest importance. When a bunion has once formed, the deformity persists. A broad shoe, a shoe which will not crowd the big toe, which will hold the heel and instep firmly and place no pressure upon the head of the first metatarsal will in most instances give relief from symptoms. In mild cases this will be sufficient and no further treatment is required. In other cases operation is called for, but after such an operation the patient should be advised especially regarding shoes. Here again, as in the case of the corn, due to pain and deformity, abnormal function leads to greater abnormality of anatomy and function.

Calluses.—Any increased strain on the longitudinal arch will likewise cause an increased strain on the metatarsal arch (the transverse arch). Also, as we have mentioned, the high heel is a factor directly causing undue weightbearing of the transverse arch. The result of an increased amount of work of the transverse arch is that the arch gradually collapses and the head of the metatarsals, especially the third, instead of being directly weight supporting toward the end of the step only, that is, while the entire weight is being rocked from the outer side of the foot to the inner side, is directly weight bearing the whole time. A malformation of the longitudinal arch with the increased strain may bring about the same condition. The elasticity of the transverse arch is diminished and the head of the metatarsal strike

the ground with an unnatural jar. The result is callus formation, especially under the head of the third toe, pain in this region, and a condition called metatarsalgia. In a great number of cases not only the callus but also the pain will disappear with appropriate strengthening of the main or longitudinal arch of the foot.

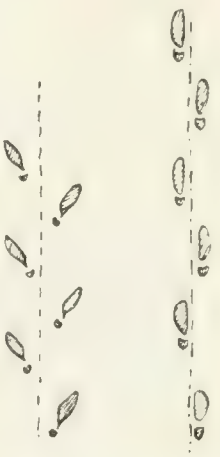
Weak Foot and Flat Foot

How do shoes affect the longitudinal arch? Or better, what rôle do shoes play in the development of "weak foot?" The term "weak foot" is preferable to "flatfoot" because the foot which causes the greatest amount of discomfort is not a flat foot, it is a foot which will become flat eventually but which still has a normal appearing arch. However, the supports of the arch are weak; after a certain amount of strain the arch does flatten but speedily returns to its normal shape when rested. A bona fide flat foot gives comparatively little trouble. In order to understand what a weak foot is and how it is caused, a knowledge of the mechanism and function of the foot is necessary.

In the normal foot, the weight is transmitted through the bones of the leg to a bone called the talus which forms a hinge. Through the talus the main weight is borne by the broad heel bone called the calcaneum. The weight of the rest of the body is borne by the forward part of the foot, but to a very much less extent. The arch of the foot is composed of the smaller bones. The outside of the arch is comparatively flat. The inner border of the arch on the contrary is high. When weight is placed on the foot the outside of the arch rests practically its entire length on the ground, the inner side of the arch however, is preserved. The arch has most aptly been compared to a series of springs, the outer spring being flat and rigid and the inner curved.

A cross section of the ball of the foot reveals another arch, the transverse arch, which also can be compared to a spring of slight curvature. What happens when a step is taken is that the heel of the foot hits the ground first. The fat pad over the calcaneum takes up most of the jar. When the entire foot lies on the ground the weight is supported mainly by the heel, but also by the springs which form the arch. The outer spring flattens so that the entire outer side of the foot rests on the ground. The inner spring also flattens slightly, thus giving resiliency to the foot, but the inner part of the instep does not touch the ground. The foot is thus balanced on the arch, just as the chassis of an automobile is balanced on its springs. As the step continues the powerful muscles of the calf pull the heel up and the weight is placed on the ball of the foot through the transverse arch. Here again the spring action of the transverse arch gives a resiliency to the step. The first push of the step is made by the big toe.

The framework of these springs is made up of the bone of the foot, held together by the ligaments and muscles. Any weakening or stretching of these ligaments and muscles will weaken the springiness of the foot.



It is hard to understand why out-toeing should popularly be considered elegant. The shoes are flared so as to bring about the desired gait at the expense of poise, grace and nervous force.

Fatigue brings about such a weakening and allows a consequent stretching. Any abnormal gait causes fatigue. In a few minutes an unnatural gait harms the foot more than hours of an easy normal walk. Any of the abnormal conditions already discussed—corns, bunions, calluses, brought about by webbed linings, etc., cause a voluntary or involuntary effort to spare the part of the foot. This means an abnormal gait, speedy fatigue, and a consequent injury to the supporting mechanism of the arches. For example, a walk which throws the weight on the inner side of the foot forces this part to do an undue amount of work. The weight, instead of resting on the ground, will have to be held up by the muscles and ligaments which form the high inner arch. It is at once apparent that this calls for a great amount of extra strain. It is just as if we tried to rest by forming a bridge with our head and heels instead of lying flat. The arch naturally stretches under this strain and causes the symptoms of flat foot. It is impossible for the foot to function well if any part of it is impaired. There applies here the fable of Aesop in which the various organs of the body claimed that the stomach was doing none of the work, but was getting all the food, but in the strike that followed the organism as a whole suffered.

Remove Cause is Remedy

If recognized early enough the great majority of weak feet can be remedied by removing the cause of the abnormal action. Weak feet can be prevented by preventing abnormal mechanical action. Arch supports may have a place in the treatment of weak feet, but only a very minor place. The normal arch needs no support. A tired arch does. For this reason it is often wise to counsel shop girls, clerks, motormen, and other workers who are on their feet a great deal, not to wear bedroom slippers or tennis slippers after a strenuous day's work. A tennis slipper or bedroom slipper gives no support to the arch. Or it may be wise to advise that if they do want to change to slippers when they get home, to wear some sort of an arch support at these times. A well fitting and well constructed shoe will not only prevent the conditions described, but will in the majority of cases cure them. As long as undue pressure or friction is brought to bear on the little toe, a corn will form in spite of any or all so called remedies. Only when the transverse arch is relieved of the abnormal strain, whatever the cause may be, will the metatarsalgia disappear. The symptoms of a bunion in most instances are relieved by removing the noxious conditions which, together with the anatomical features, definitely cause the symptoms. A weak foot is cured by readjusting the weight bearing, by removing the actions which have weakened the supporting muscles and ligaments. A well constructed and well fitting shoe should hold the foot snugly, should not press unduly on any one place. The heel and arch should be firmly held. The front part of the foot should be free to expand as the weight is shifted. The heel should be broad, giving a large and stable tread surface. A rubber heel is an advantage because it takes up a certain amount of the jar. The shank should not be so wide that it offers no counteraction to the downward push of the lacings. The leather itself should not be entirely impervious to air.

Education Measures Against Venereal Diseases*

A Plan Really to Instruct, Naturally and Logically, and Without Psychic Stress

By KARL MARCUS, Chief Physician at the Hospital St. Göran, Stockholm, Sweden

THE work of information and instruction respecting venereal diseases hitherto carried on in Sweden has been almost exclusively of a private nature. On some few occasions, lectures have been given for the adult population, and in a few secondary schools, girls' schools especially, sexual hygiene has been dealt with in detail, the instruction, in some cases, embracing infectious venereal diseases, too. Some school doctors attached to secondary schools for boys have, on their own initiative, lectured on the subject to the youths at a period immediately before they sit for their matriculation examination.

Better care has been taken of the military in this respect, as in the instruction in general hygiene that the military surgeons have to give the men, there have long been included a couple of lectures on venereal diseases at present supplemented by information on the more important regulations of the Venereal Diseases Act of 1918, and on the obligation lying on the men to avail themselves of medical prophylaxis.

But when the state seriously took up the struggle against venereal diseases, it saw more than well the extraordinary importance of a thoroughly carried out system of instruction and information in this matter. There was included in the Act, consequently, a special regulation whereby the state authorities undertook the arrangement of such work, section 27 stating:

The Government will issue regulations respecting the measures necessary for spreading among the population a knowledge of the nature and dangerously infectious character of venereal diseases, of the means available for the prevention of the conveyance of infection, and of the obligation attached to each one who is attacked by such a disease of obtaining medical aid as soon as possible.

In consequence of this legal regulation there was appointed in October, 1918, a Royal Commission empowered to draw up a plan for public instruction and education respecting venereal diseases. The Commission consisted of a representative for primary schools, another for secondary schools, one for the Committee for Popular Instruction, together with a woman doctor and a man doctor. After a thorough investigation of the question, the Commission sent in its report of 232 pages in March, 1921. The very radical proposals made by the Commission as a result of its labors will certainly encounter serious opposition, and it is by no means certain that the authorities in whose hands rest the power of deciding in the matter—the Government and the Parliament—will adopt the Commission's views. As, however, the investigation made appears to have been an extremely thorough one, the evidence adduced convincing, and the proposals made extremely worthy of attention, I shall give herewith—as a reply to the questions now brought forward,—a short reference of the report in question.

The Basis of Investigation

(1) First of all, there was sent to various educational establishments in Sweden a question form, asking for information as to whether instruction in sexual hygiene and venereal diseases was given in the school in question. By the answers received it was seen that only an extremely small number of the educational institutes communicated with, gave such instruction. Most of the textbooks in zoology do not say a word as to the propagation of the human race or of the organs of propagation. It was mostly in the secondary schools for girls and in the state training colleges for elementary school teachers that this subject was dealt with. In secondary schools for boys the subject was touched upon in, at most, one-fourth of the whole number of schools applied to.

By the kind offices of the Swedish Foreign Office, the Committee also placed itself in communication with various other civilized countries and received replies, displaying more or less interest in the matter, from most of the countries applied to. The reports received were, as a rule, of a negative nature. Any thorough work in the way of information and instruction respecting venereal diseases hardly seems to occur in any of the countries in question, although much had been done voluntarily for the enlightenment of the public, especially in Germany and, during the last few years, in the United States of America, too.

The Commission, therefore, had been unable to build on any great experience, either in Sweden or in other countries, when it began its task. The first thing it had to do, then, was to investigate the necessity of "sexual instruction," as the Commission has called it. In this matter the Commission received powerful support from the above-mentioned replies to the inquiries sent to the various educational establishments in Sweden. Most of the headmasters or mistresses pointed out the extreme desirability of such instruction, not only for the youth of both sexes at a suitable age, but also for the general public. As the general opinion in many civilized countries is, that enlightenment on sexual questions is one of the most powerful weapons in the struggle against venereal diseases, and as prominent representatives of the Swedish educational corps had certified to the great desirability of the introduction of such instruction, the Commission felt that it was able to assume the position that there really existed the necessary starting point for its action, viz.: the demand for the instruction of the youth and adults of the population with regard to venereal diseases and their great danger for the individual and the community at large.

Even before the appointment of the Commission, various authorities had expressed their opinion on the subject. For example, the Royal Commission for Venereal Diseases in 1910 had expressed the desirability, aye, the necessity, of instruction in schools and for the adult population in respect to sexual questions. The Central Board of Education, the Government Board of Health and the Municipal Board of Health of Stockholm had all expressed their opinion of this report and had, in the main, supported the views brought forward there. At a meeting of teachers in 1906 the question formed part of the

*Read before the Northern European Red Cross Conference for Combating Venereal Disease, Copenhagen, May 20-25, 1921.

program, and the introducer of the discussion emphasized most strongly the necessity of sexual instruction in schools. A Royal Commission for the re-organization of national education expressed more doubt on this point, however. In its reports of 1912 and 1914 it has stated that it was desirable, but scarcely possible, to carry out such instruction in the schools. In opposition to this, a meeting of teachers at the above mentioned State Training Colleges pointed out most emphatically the utility and necessity of instruction in sexual hygiene. The Commission—the one mentioned at the beginning of this paper—enjoyed the support of various authorities, therefore, when it expressed its opinion as to the need and absolute necessity of such instruction.

Two Directions of Effort

(2) The Commission divides its work into two separate sections: instruction in schools, and instruction outside the schools for the adult population. As regards the first part of the problem, it is pointed out that so-called sexual hygiene and instruction respecting venereal diseases are so intimately connected that they ought not to be made separate subjects of instruction, but should form one branch, entitled by the Commission, "Sexual instruction." This instruction should be available to all youth, at the age of about fifteen, in the form of an abbreviated course. If this age is fixed, then every child attending school would receive sexual education as, at present, the obligatory school instruction embraces children of the ages of fifteen and sixteen. That part of the youth after this age who remain in secondary schools until the matriculation examination between eighteen and nineteen years of age would, in addition, immediately before sitting for this examination, receive a somewhat more extended course of instruction in the subject. Sexual instruction in the schools should be based on the instruction in biology, and especially the instruction in hygiene which forms part of the course in biology, should consist partly of purely biological details and, in addition, of social and ethical considerations. The shorter course should embrace about two hours; the longer one, three to four hours. The latter course should include a somewhat more detailed account of the social points of view in the matter. First and foremost, the instruction should be given in connection with biology, but also, in suitable parts, in combination with instruction in Christian doctrine, sociology, and psychology. The teaching should preferably be given by a medical man or woman; but, when no doctor can be had for the purpose, by the ordinary teacher. In addition, the boys should be taught by themselves and the girls by themselves, preferably by teachers of the same sex as the pupils.

Respecting the subject matter of the course as planned, the Commission pointed out: "That the aim of the said instruction, concerning venereal disease in regard to suitability and natural sequence, should be: (a) To impart a knowledge of the nature and dangerously infectious character of the said diseases; (b) To point out the import of these diseases as regards the individual, the family and the community at large, both for the moment and in the future; (c) To arouse attention and reflection in regard to the danger of infection; (d) To point out that the danger of infection can be avoided and counteracted, and the means of doing so; (e) To instil the obligation attached to each one who is, or who fears he is, attacked by such a disease, to seek medical help at once; and (f) To create in every one a vital feeling of responsibility in respect to the health of himself and others, and to the welfare of society in the respects just mentioned."

In this connection it should be emphasized that the said instruction should not, of course, aim at giving any knowledge as to the diagnosing of these diseases, nor of their treatment, so that the greater number of the symptoms of disease and of the method of treatment need only be mentioned to the degree necessary to attain the aims above mentioned, or so as to make the instruction sufficiently clear. It is self-evident that all instruction in sexual matters must be so carefully chosen and given that it will not excite the passions or the imagination, nor unnecessarily frighten and disturb the pupils.

The pupils, at the age when it is intended this instruction is to be given, will already have acquired the necessary preparatory knowledge by their earlier study of botany and zoölogy, in addition to which, they have been made familiar with the course of fecundation and fertilization in plants and animals, and have also gained some knowledge of the development of the fetus within and outside of the mother, in different classes of animals. The so-called minimum course, therefore, should embrace the following outline:

The essentials of fecundation: the ovum and semen cells, their character as conveyors of heredity, their coalescence. The sexual glands and other organs of generation,—these not to be described in detail, but merely in outline together with their functional importance. The main features of the development of the fetus, its connection with and dependence on the mother's body. The character of the process of birth. The continued dependence of the newborn child on the mother.

It should be pointed out that the organs of reproduction are not capable of carrying out their functions before the body has attained a certain development. Menstruation and pollutions are mentioned as signs that show that the sexual organs have begun to attain maturity.

It should further be instilled that the natural aim and end of sexual life is the propagation of life, and that this should not take place before the individual has reached full development and has become capable of forming a home, and of caring for and educating the children; it should also be emphasized that until this happens, sexual continence should be observed.

The dangers of onanism (self-pollution) should not be unnecessarily emphasized or enlarged on, as this may lead to nervous derangements. The temptation to onanism felt by many young persons can best be avoided by directing the thoughts to other subjects by means of suitable employment, proper reading, bodily exercise, and a hygienic mode of life in general, together with an avoidance of loose conversation and provocative reading.

It should be emphasized that the external sexual organs, like the body in general, should be kept clean. The instruction for girls should teach the importance of menstruation-hygiene and of the observance of the greatest possible cleanliness in childbirth.

Venereal Diseases

(a) *Their extension.*—When giving instruction respecting venereal diseases, a short account should be added of their great extension and of the social danger they consequently form.

(b) *Symptoms and course.*—The symptoms and course of these diseases are described as briefly as possible.

Syphilis.—The disease is a bacterial one which begins with a sore, whence the virus makes its way into the lymph and thus in a short time, is spread throughout the system. The course of the disease varies very

much, being sometimes slight and sometimes exceedingly malignant; shorter or longer periods of apparent health can intervene between outbreaks of the sickness. Syphilis often causes infectious sores and eruptions of various kinds on the skin and mucous membranes. It can attack internal organs and, *inter alia*, occasion heart complaints, paralyses, blindness, deafness, mental diseases, and death. The disease can be transmitted to the sufferer's children.

Gonorrhea (the "clap").—The disease is caused by bacteria which attack the mucous membranes, as a rule, those of the sexual organs, and also the conjunctival membrane of the eye, especially in newborn children. Its course is attended with a greater or lesser discharge of pus from the parts attacked, accompanied, as a rule, by aching and pains. It can give rise to inflammations in and around the sexual organs and, especially in women, can cause lingering and great suffering. Gonorhea can lead to sterility in both sexes. If the eyes are attacked, blindness can follow. The disease can also spread to the joints and can cause very acute inflammations of the joints.

Soft Chancre (ulcus molle).—This disease is caused by bacteria which attack the skin and mucous membranes, usually those of the sexual organs and the surrounding parts. The disease appears in the form of sores which are often attended by swellings of the glands.

In regard to the diseases mentioned, it is to be pointed out that medical science has now discovered methods for their treatment which, in ordinary cases, lead to the restoration of health. The earlier the doctor's aid is sought, the greater are the chances for the invalid to obtain a speedy and complete cure. Warnings should be given against applying to quacks, and against self-treatment.

(c) *The danger of infection and its avoidance.*—Venereal diseases are usually spread by sexual intercourse, but also by other bodily contact, and also indirectly by infected objects. Every one who is accustomed to have occasional illicit sexual intercourse should be suspected as a carrier of contagion. Even persons who "look perfectly healthy" may be carriers of infection. The absence of outward, visible signs, consequently, is no guarantee that the individual in question is free from infection. One should avoid coming into intimate contact with persons who may be suspected of being carriers of infection. The greatest cleanliness must always be observed with regard to closets, the table service, towels, etc. The very usual circumstance that not only acquaintances but also strangers are in the habit of kissing little children, in season and out of season, always constitutes a danger of the possibility of the conveyance of infection to the children.

Sexual continence is the best preventive against infection. Such continence is not dangerous to health. Assertions to the contrary have no foundation in fact. Training to self-control is a necessity. Caution should be observed with regard to the consumption of alcoholic liquors, as such drink not infrequently acts as a stimulant to sexual emotions and also deprives one to a greater or less degree of self-control.

(d) *Measures in case of suspected infection.*—If there exists merely the suspicion of having come into contact with a part of a body attacked by infection, or with an object tainted with infectious matter, one should endeavor to remove the virus by very careful washing and suitable means of disinfection, and, above all, one should go to a doctor at the earliest possible moment. Care should be taken, however, not to fall a victim to exaggerated and misdirected apprehensions.

(e) *Personal responsibility. The law.*—The pupils should be taught to perceive that each one must feel a sense of responsibility with regard to the health, care, and education of the race; that parentage should be held in respect by all, both man and woman, and that everyone is bound to preserve his health for the sake of a future family, too. It is each one's duty, therefore, to avoid exposing oneself, from thoughtlessness or wantonness, to the risk of being infected by venereal disease.

Everyone who is attacked by a venereal disease is bound by the law to submit himself to medical treatment. The one who knows, or who has reason to suspect that he is infected, commits a criminal and, therefore, a legally punishable act, if he exposes another person to infection. It would be possible to exterminate sexual diseases if everyone did his duty in the respects mentioned. Everyone should render his assistance in this matter. It should also be instilled into the pupils' minds that one has no right to condemn other persons because one may know them to be, or to have been, attacked by an venereal disease; neither has one any right to raise unnecessary obstacles in the path of these persons with regard to their work, dwellings, and the like. If necessary, affected persons should be admonished and assisted in a tactful way to apply for and follow medical advice. It is to be remarked that the teacher employed should very evidently be allowed a certain freedom respecting the details of sexual instruction.

A Comprehensive Course

The detailed course intended for the youth of more mature years should embrace, in addition to the matter for the minimum course, a somewhat more thorough and a deeper knowledge of the subject. In giving this advanced course the teacher should first remind the pupils of what they had previously learned in biology respecting the structure and functions of the organs of reproduction. Should, for any reason, such preliminary instruction not have been given to the pupils, these chapters should first be gone through. In connection with the treatment of the question of the structure of the ovum and semen cells, there should be mentioned the most important results obtained by research in the field of hereditary transmission, together with characteristics inherent or acquired. In addition, mention should be made of the importance for the body of the sexual glands as organs of internal secretion.

After this, a somewhat detailed description is given of venereal diseases and their various forms, this, when possible, with the assistance of object material; this latter, however, should only refer to the bacteria of the diseases and should not illustrate their symptoms. In this connection, the teacher should touch on the incubation period of the diseases, and mention should be made of blood tests for syphilis, and the importance of this method.

In this course of instruction, more time should be devoted to the social points of view than can be spared during the minimum course. To begin with, the extension of venereal diseases should be illustrated by means of suitably chosen statistics. Prostitution, too, should be briefly mentioned. The dangers to public health created by venereal diseases should be pointed out. There should further be emphasized the fact that these diseases, in consequence of their great frequency, play an important rôle in national economic respects, from the loss of time caused by the conditions

of the sickness. In addition to this factor, come the increased expenses resulting from the care, both of those affected and of those attacked by sequela. Many cases of insanity, idiocy, deaf-mutism, and blindness are caused by venereal diseases, and demand expensive care. Mention the existence of such special institutes as Welander Homes for children who are inherently syphilitic.

It should also be pointed out that, in consequence of the ravages of venereal diseases, the public health becomes deteriorated to a serious degree; that venereal diseases contribute essentially to diminish the birth-rate and that, in the opinion of many experts, syphilis can play a rôle as a degenerative factor.

During the instruction, an account should be given of the legal enactments now in force in respect to measures against the spread of venereal diseases, *i.e.*, the law of June 20, 1918, respecting measures against the spread of venereal diseases; the penal law Chap. 14, sections 21 and 45, and Chap. 18, section 11, as well as the law concerning the contraction of marriage and the dissolution of the same, Chap 2, section 6.

At the close of the course, there should be distributed to all the pupils leaflets on the subject, in which mention is also made of the above legal regulations.

The Commission emphasizes the importance of physical education—gymnastics, athletics, outdoor life—as an auxiliary in sexual education.

It would carry me too far to enlarge here on the Commission's detailed plan for sexual instruction in the various classes of schools existing in Sweden, but I cannot omit quoting the words of the Commission on the suitability of the doctor as a teacher in this subject.

The Doctor as a Teacher

We should like to point out, first of all, that, of course, the preferable plan must be to employ a doctor—man or woman—to give the whole of the instruction in hygiene and, consequently, in sexual hygiene too. In the first place, a doctor possesses a greater knowledge of the subject and, in addition, the authority of the doctor is, as a rule, so great that it will be able to check the inclination that may exist among the pupils to receive the instruction in an improper or offensive manner. It is, however, only in a few cases that it will be possible to get a doctor to give such instruction. As a rule, though, for the reasons just stated, it is desirable that the instruction in sexual hygiene, at least, should be imparted by a doctor.

The fact must not be disregarded however, that there exist circumstances which, in certain instances, make the doctor less suitable for the instruction now in question than the non-medically trained teacher. It is to be remembered that not every doctor can be presupposed as possessing the pedagogic tact and insight which must of course often be called for, when giving such instruction as that now in question and, in addition, the doctor, as opposed to the teacher, does not enjoy that great advantage given by an exact acquaintance with the preparatory knowledge possessed by the pupils, and other theoretical preliminary conditions, necessary, if the pupils are to be able rightly to utilize the instruction, and by a similar acquaintance with each pupil's individual bent of mind, all of which makes the teacher better suited to adapt himself to conditions which, in these respects, may vary extremely in the same class. Furthermore, it will be easier for a teacher to impart instruction in a clearer way, while many a doctor will be hampered by certain modes of expression due to his own technical training. Finally, it forms a strong point for the teacher that he is able to combine directly sexual instruction with other school subjects, while in this respect the doctor will have to adjust his occasional instruction with the school time-table, without any direct connection with previous or with subsequent lessons.

(3) When the Commission subsequently passes on to discuss the details of the plan of instruction, emphasis is laid, first and foremost, on the great rôle played by the home in this respect. The child's earliest questions on sexual matters, regarding "where it came from," etc., should not be answered evasively, with an order to keep quiet, or with absolute fables; the "stork" myth should be banished from the child's education. In the earlier stages of the instruction in the school, the subject is mentioned when, in the course of the lessons in biology, hygiene is dealt with. Both in the instruction in biology and in zoölogy, as well as in hygiene pure and simple, the problems connected with propagation should, gradually and clear sightedly, be so treated as to form a preparatory course in sexual instruction whereby, in a fully natural and consistent manner, the sexual instruction proper, which begins at the age of fifteen, is brought into connection with the above-mentioned subjects.

The Part of the Public

There exists in Sweden a very comprehensive and well carried out organization, in enjoyment of partial State assistance, for the giving of popular lectures. The Commission conceives that this organization might include sexual instruction in its program, a thought which, as a matter of fact, has already become a reality, although on a small scale. In these lectures, which ought to embrace a total of at least three hours' instruction, the more detailed school course should be the minimum dealt with. In such lectures, of course, more delicate matters can be touched on than those dealt with in school instruction, the age of the public making possible a better understanding of the ethical and social points of view of the problem. In connection with the lectures leaflets and pamphlets should be distributed. The idea is, that such lectures should be given exclusively by doctors. The expenses attendant on them should be borne partly by the State and in part be covered by a small fee for admission. I shall say nothing respecting the organization and the detailed plan of this instruction by means of public lectures.

(4) Even if, as was pointed out above, doctors can, to a certain extent, be reckoned with as responsible teachers of sexual instruction in the schools (i.e., the secondary and the primary schools) in the towns, and also for such instruction there outside the schools, this is, of course, not the case in the extensive rural districts and in extremely small centers of population. If, in such places, sexual instruction is to be given to school children, resort must be had to the teaching staff available there, and this forms the most vulnerable point in the organization. At first sight, the difficulties appear so discouraging that one is tempted to ask if they are not so great as to form an insuperable obstacle to the entire plan of instruction. But on a closer investigation, however, one comes to the conviction that it will, probably, be possible to overcome the difficulties in question, even if a considerable time must elapse before the intended aim is attained.

Teachers in elementary schools are educated at state training colleges. In the time-table adopted for these educational institutions, one subject is a fairly detailed course in general and sexual hygiene. The Commission proposes that this course should be lengthened somewhat, by the addition of the subject, venereal diseases. The instruction in this instance should, preferably, be given by the college doctor, who in many places is actually the teacher in this subject. As regards the instruction in sexual hygiene of the future teachers, therefore, it would probably be a very easy matter to communicate so much

knowledge as would be requisite to enable them, in their turn, to teach the children the minimum course. A short handbook on the subject would probably be of the greatest help to these future teachers, and, at the request of the Commission, I have compiled one.

As regards the teachers in biology, again, who in *secondary* schools, may be delegated to give sexual instruction, it should be pointed out that, during the pursuit of their studies at the University and private High Schools, they even now have to take a very detailed course in general hygiene. (According to a list of subjects of study at Uppsala University, this covers no less than thirty hours). There would probably be no difficulty in adding the subjects of sexual hygiene and venereal diseases to this course, and one could, with equal certainty, depend on having specially trained doctors as the teachers in the subjects. The handbook just mentioned would, I imagine, be of great help in the future to these teachers in secondary schools too.

It is during the transitional stage —the period before a teaching corps, trained to give instruction in sexual hygiene, has got well to work—that the difficulties will be greatest. The Commission considers, however, that the teachers now at work could acquire the knowledge required for giving the most necessary points of sexual instruction, by means of special courses at their respective colleges or university (partly with State support) and by private study of the above-mentioned little handbook, etc., or, maybe, by consultation with some suitable doctor. The lectures which, during the last few years, have been given, experimentally, for teachers in primary schools, have shown that the necessary preliminary knowledge, and an appreciation, of the subject prevails among them, so that the interest shown in these lectures has been extremely great.

5. Finally, the Commission proposes that all textbooks in biology should be supplemented by information respecting sexual hygiene and venereal diseases; that suitable textbooks for the future teachers of the subject should be compiled, and that popular papers and leaflets should be written, which should be examined and approved of by the public authorities. Three specimens of such leaflets accompany the Commission's Report.

* * *

During the course of its labors, the Commission has not been blind to the many difficulties lying in the way of the proposed great work of enlightenment. That part of the work which concerns adults, offers the least difficulty in this respect. The public in Sweden is probably, at present, so unprejudiced and shows such an interest in the acquirement of a knowledge of sexual hygiene and venereal diseases, that it will be an easy matter to overcome the preconceptions that may possibly still exist on the subject. The new law which for several years has been the subject of public discussion, not only among doctors and other persons interested in the matter, but also in the newspapers, has paved the way in this respect.

The greatest difficulties arise, however, when we come to the question of the enlightenment of youth. The conditions necessary if the proposed school instruction is to be of any utility are, of course, (1) that a sufficient number of competent teachers can be procured, and (2) that the instruction is communicated in such a tactful and delicate way that no harm will ensue from it instead of the intended good. The Commission believes, however, that if the instructions and hints given in the report are followed, and if the sexual instruction is combined, naturally and logically, with the teaching in biology and, if it is also given in connection with instruction in ethics and sociology, then the intended effect will be attained without exposing the psychic life of the children to too great a stress. This will, more especially, be the case if the influence of the *home* paves the way, so to say, for the future sexual instruction later on in the school.

Alabama Malaria Control Planned

The chief matter under discussion at the recent meeting of the County Health Officers of Alabama was the new plan of doing malarial control work through the county health officers, on a country-wide basis. Announcement was made of a plan of cooperation between the State Board of Health and the State Board of Education, for school sanitation, and the establishment of courses in hygiene in the schools.

A new maternity ward for tuberculous patients has been opened in the Hospital Vicente Lopez y Planes, Argentina, according to the *Bulletin of the Pan American Union.* The ward has 32 beds and all the improvements and equipment of a modern hospital. This is the first ward of its kind in Argentina.

Sanitary Control of Camps

THE direct sanitary supervision of beaches and bathing places in the summer is often hampered by the lack of rulings on essential features having to do with their control. These problems are springing up everywhere throughout the country and for this reason we print herewith a copy of proposed additional regulations for the supervision of beaches in and around New York City, drawn up by Dr. Louis I. Harris, Director of the Bureau of Preventable Diseases, in association with Mr. James D. Sullivan, the Counsel of the Department of Health of the City of New York.

RESOLVED, that the regulations of the Department of Health of the City of New York governing the conduct and maintenance of summer camps, and relating to Section 217 of the Sanitary Code, be amended by adding thereto a new Regulation to be known as Regulation 11 as follows:

All agencies in the City of New York which send children out of town on vacations of periods of more than one day shall be subject to the following provisions:

(a) Every agency conducting or maintaining vacation camps shall be registered with the Department of Health of the City of New York, and shall have a certificate from said Department of Health.

(b) All such camps wherever maintained or situated shall be under the supervision and direction of the Department of Health of the City of New York.

(c) There shall be medical supervision in every camp.

(d) All children shall be examined by a physician immediately prior to departure for camp, so that all possible cases of contagious disease shall be excluded.

(e) No child of a family in which contagious disease exists shall be sent away to such camp, the agency taking all possible precautions to secure information.

(f) All facts relating to every case of communicable disease or suspected communicable disease at vacation camps shall be immediately reported in writing to the Department of Health of the City of New York.

(g) No person shall be employed or permitted to work in a vacation camp unless he shall submit to a physical examination, and to a Widal test and stool specimen examination, and shall have procured a certificate of health from the Department of Health.

Increased Mortality Past Middle Age*

Periodic Medical Examinations Will Increase Average Longevity

By M. T. McCARTY, M.D., Medical Director, Peoples Life Insurance Company, Frankfort, Ind.

IT IS generally conceded that mortality up to middle life has decreased and that the average age of man at death has gradually increased, due to better hygienic conditions and better treatment and control of communicable diseases. It is now proposed to show that past middle life there has been a gradual increase of mortality, to discover the causes of this condition and propose a remedy. To prove the first point we must rely on available statistics, regretting very much that the United States life tables for 1920 have not yet been printed and that the latest available statistics are ten years old. The higher mortality for the ages past middle life is in striking contrast to the decreased mortality at the younger ages for both sexes during the past four decades. The following table shows death rates at all ages for 1900 and 1911, a study of which shows a decrease before middle life and an increase past middle life:

Comparison of Mortality By Age Groups

Death Rate Per 1,000 Population. (Registration States as constituted in 1900.)

	Males		
Age	1900	1911	Inc. or Dec. %
Under 5	54.2	39.8	—26.57
5 to 9	4.7	3.4	—27.66
10 to 14	2.9	2.4	—17.24
15 to 19	4.9	3.7	—24.49
20 to 24	7.0	5.3	—24.29
25 to 34	8.3	6.7	—19.28
35 to 44	10.8	10.4	—3.70
45 to 54	15.8	16.1	1.90
55 to 64	28.9	30.9	6.92
65 to 74	59.6	61.6	3.36
75 and over	146.1	147.4	.89
All ages	17.6	15.8	—10.23

Further study of such tables as are available seems to point in the same direction. In the comparison of the United States life tables registration area of 1910 and the American Experience table an increased mortality is shown. The New York table bears similar conclusions. It would therefore appear that the available statistics support the conclusion that the rate of mortality is increasing past a more or less clearly defined stage of life, called middle age. It now remains to disclose the causes contributing to such a result and find and apply how these conditions affect insurance.

The figures of average longevity and mean expectation of life just quoted only emphasize the prevalent understanding that increased hygienic measures and sanitary knowledge, principally accomplished by public health authorities, are largely responsible for the result. The lessening and better control of infectious and communicable diseases and a reduced death rate in infancy and childhood are the factors which produced the beneficial results. The saving in mortality at younger ages is offset largely by the increased waste in the older ages. As a great amount of insurance is written on lives in middle age and later, when the desire and ability to pay for larger amounts become more noticeable, it is of importance to see where the losses of life arise and how they may be minimized.

Degenerative Disease Toll

Past middle life the vital organs, especially the cardiovascular and renal systems, are subject to more rapid degeneration. This has always been characteristic of advanced ages. Such degenerative diseases claim 58.7 per cent of total mortality after age forty-five. To be more specific in the causes of death, according to the government and health statistics, heart and arterial diseases from ages thirty to thirty-nine increased 6.3 per cent; from forty to forty-nine, 19.8 per cent; fifty to fifty-nine, 30 per cent; sixty to sixty-nine, 56.3 per cent; seventy to seventy-nine, 156.8 per cent. Apoplexy decreased under age fifty, but increased from fifty to fifty-nine, 18.8 per cent; sixty to sixty-nine, 33.3 per cent; seventy to seventy-nine, 46.7 per cent. Kidney diseases decreased at all ages under forty, but increased from forty to forty-nine, 1.8 per cent; fifty to fifty-nine, 22.2 per cent; sixty to sixty-nine, 43.0 per cent; seventy to seventy-nine, 64.1 per cent.

About 30 per cent of accepted life insurance risks, supposed to be practically normal, succumb to cardiovascular diseases. Cancer has been gradually increasing as a cause of death at the rate of 2 per cent per annum. Of all deaths from this cause, 90 per cent are over forty years of age. Possibility of control of cancer and other degenerative diseases is much more hopeful than seemed likely even five years ago.

The consumption of tobacco has risen from three billion cigarettes ten years ago to twelve billions in 1918, to forty billions in 1920, to fifty billions this year. Last year we spent two billion dollars for tobacco alone, or one and one-half times the cost of running our government. Women now smoke on a much larger scale than they used to. It follows, therefore, that if allowed to continue as they are doing, there will be a large increase in the patients suffering from cancer of the tongue, high blood pressure, and heart affections. This fact must be considered as somewhat explaining part of the cause of this increase. Detracting some from the accuracy of this is the constantly changing of the character of our population by adding to our population millions of Poles, Slavs and Italians which we did not have at an earlier date. But this does not, in my judgment, explain the increased mortality rate in the group past middle age, nor the fact that native born Americans today do not show an increased mortality past middle age.

The degenerative diseases have increased, but this report is somewhat offset by the fact that there are better and improved technical methods of diagnosis, and consequently more accurate reports on diseases than formerly. The result of this constant effort is to get more specific reports on the cause of death, but this will not explain altogether the increased mortality after the crucial age of man. The marked decrease in mortality which characterizes the earlier ages does not continue past middle age, but here is the line where this gradual decrease ends and the gradual increase begins, accompanied by such a class of degenerative diseases as has been referred to as caused by overeating and bad habits of life and lack of exercise, which bring on degenerative processes. Possibly a cause is increasing wealth and indulgence, along with intestinal toxins.

The American business man works

*Read before the twelfth annual meeting of the Medical Section of the American Life Convention at French Lick Springs, Ind., March 1-3, 1922.

too strenuously and in far too many instances dies young, literally working himself into an early grave, and, too, on the other hand, the man who retires and idles his time away dies young also, just as idle machinery rusts out much quicker through nonuse. So a happy medium of neither too much work nor too much idleness is imperative for a long life, but reasonable work is essential to health.

Our modern system of industry, factory system, and concentration subjects the people in cities to a more strenuous life, where the wear and tear on the system is greater and the results show a higher mortality past middle life. The fierce competition and strife for business supremacy sets a rapid and strenuous pace in the business and social life of today which we did not formerly have. Opportunity to live in the open close to nature and to get exercise and preserve the health is not today the simple matter that it formerly was.

Bad Habits of Modern Life

All this goes to confirm the belief that there has been a deterioration, a decline in the vitality of the average person past middle age. The greatest factor that excites our apprehension is cardiovascular diseases, which play the preponderant part in the production of degenerative diseases. Hence poisons, irritants, such as heavy meat eating, overeating, auto-intoxication, improper elimination, red pepper, mustard, tobacco and alcohol are causes of the chronic irritation of the inside coats of the arteries and capillaries, followed by inflammations, swelling, thickening, hardening, narrowing of the lumen of these vessels, thus impeding the circulation and producing high blood pressure, enlargement of the heart and a degenerative condition of the tissues of the arteries and kidneys, resulting in apoplexy and premature death. Excitement, worry, and overwork cause an expenditure of nerve force along with the struggle for wealth and social position, playing an important part in causing these degenerative symptoms. This is especially noticed in the strain and stress of the fierce competition in our large cities.

Then we have the big dinners, late suppers and late dances or theater, heavy smoking, overeating, drinking, and other bad habits of life, and little rest, with application to business the next day, which results in degenerative processes. Think of the tired, overworked stomach, heart and kidneys—a tension with no vacation, no mercy to these overworked organs!

We should know that an excessive protein diet results in poisonous by-products which are absorbed into the blood as poison, such as meats and alkaloids of tea, coffee and cocoa, which act as irritants to the inner walls of the blood vessels and which lead to thickening, hardening and high blood pressure. Overeating has the mechanical effect of increasing the blood pressure and leading to arterial troubles.

There are about two million people in the United States who are seriously impaired from heart disease, and about one hundred and fifty thousand die each year from this cause, and virtually nothing has been done against this disease. Insurance statistics show that about 2 per cent of persons examined by insurance companies are rejected each year because of various organic heart troubles. We know that the presence of heart trouble greatly shortens the longevity of those afflicted. In insured lives in the industrial population the incidence of this disease is second to tuberculosis.

The death rate from heart trouble increases with age. The medical inspection of school children will result in a better mortality from this disease. Heart disease stands first in the list of causes of death in old age.

There has not been the progress in the control of the diseases of adult life that has been accomplished in the diseases of the earlier years through the prevention of acute infectious diseases. The former may in part be attributed to indifference to right habits of living and methods of prolonging life. I urge more scientific study of these degenerative diseases as to the best methods for their prevention and control. We undoubtedly have the proof of better medical and surgical procedure, better sanitation, and better hygiene.

Our bodies are reaping at middle age and past what has been sown in earlier years. The degenerative diseases are so often the sequela of diseases that have occurred in earlier life. Impairments resulting from acute infectious diseases. Very often these impairments go unnoticed until past middle life, when the vitality has begun to weaken under the strain of years of activity, when they terminate into some degenerative disease. Therefore, more attention should be placed upon the prevention of the earlier acute infections to avoid these sequela and their resultant mortality past middle age.

Our vocation in life has much to do with our longevity. Those callings that wear out life very rapidly are those that require drudgery and work in dark places. I believe that part of this increased mortality is due to a failure on the part of the people to adapt themselves to the changed mode of life since the introduction of so many modern conveniences. There is the modern automobile, the elevator, the telephone, free mail delivery, and numerous labor-saving devices which have reduced physical exercises that were formerly conducive to health and long life. The centralization of the people in the cities away from the country life has taken them away from outdoor air occupations and exercises for indoor air and sedentary pursuits. Many of these cases are the result of occupational hazards during early life. The prevention of mouth infections and bacterial diseases will lessen these degenerative changes in later years.

General Neglect of Health

We can recall many cases involving brokendown heart and kidneys which are so frequent in those past middle life. So many of these patients are almost entirely ignorant of the methods of right living, devoting their whole attention to business affairs, to the neglect of the things which are of far more importance. They remain ignorant of the consequences of the inordinate appetite and their overweight and lack of hygienic exercise. There are many who pay a yearly fee to the lawyer for guidance to avoid litigation in business affairs, but the idea never comes to them to seek the advice of a competent physician to avoid the snares and pitfalls of physical infirmities, which are worse than lawsuits.

If we figure the relative economic importance of conservation of health and life of younger as compared with older ages, I believe that the economic value of life conservation past middle age is practically as great as it is for the younger ages. And here I do not want to be understood as in any way minimizing its value in control of communicable diseases of early life, but in considering the potential value past middle life there must be added the cost and value of experience gained and the cost of the great productiveness at those ages in contrast to that of the younger ages.

Early diagnosis is of the greatest importance in these degenerative diseases, and just as important is early treatment. With this in view several life insurance companies now offer to the policyholders free medical examinations at frequent intervals, which has been found profitable to them.

The movement to urge those past middle life to be examined physically at intervals of one year at least, in order to discover incipient impairments when they might be cured, whereas if permitted to run on would go rapidly into the incurable class, followed by a breakdown deserves the earnest support of all life insurance companies, for we have evidence already of splendid returns where it has been tried. Too much importance has been laid on the sacredness of private property and too little on the duty of all to contribute to the welfare of the whole people. Preventive medicine has proved that it is an important factor in keeping off disease and early mortality. If the facts of this are ever gathered in the most thorough way, every citizen must be enlightened so that he will submit himself to a thorough examination once every year or oftener. The benefits of this to life insurance companies are self-evident, because early recognition in most diseases reveals their early stages when they are amenable to treatment. The early recognition of cancer, tuberculosis, Bright's disease, heart disease, diabetes, etc., together with the elimination of acute infectious diseases would add fifteen years to the average life, besides saving untold suffering and financial loss.

It seems to me that several companies doing business in a section could go together, share the expenses and offer free medical examination to the policyholders, and in this way find the first signs of degenerative diseases and then modify the mode of life so that the disease would be checked or modified. Today our modern life is making great and increasing demands upon the energies and vitality of people in the fierce struggle for success in life.

The efficiency of our nation depends upon the efficiency of the people that compose it, for mental and physical efficiency depend upon good health. To maintain our place in the world and to meet the keen competition of other nations we must be healthy, vigorous people. It is our duty not only to maintain our health standard at par, but to do what lies in our power on behalf of the health of our fellow men.

Such organizations as the Life Extension Institute of New York City and National Health Guard, which have for their object the rebuilding of American vitality to prolong healthful, useful years of life and make them more livable, and the conserving of human life and human usefulness, should receive our commendation.

We now have medical inspection of school children, whereby they are informed of their physical defects and encouraged to have them removed. This tends to prevent heart and kidney impairments later in life. If we had the same inspection in our shops and factories, and persons suffering from physical defects could be informed of the fact and advised to secure proper treatment or change of work where the nature of the work tends to aggravate the condition, this would be a most effective means of life conservation.

Insurance companies should encourage everything in the way of public education concerning personal hygiene, as this will result in avoiding losses brought on through neglect of the symptoms leading to serious and incurable diseases later on.

Dr. Fisher points out that the causes of death which predominate in higher-age groups are preventable to a degree that, if the diseases and conditions involved were controlled to the extent of the facilities of modern science, there would be added to the expectation of life at least one and one-half years at age 45.

Need Inspection of All

The period between 45 and 55 is the crucial period in man's life, the time when degenerative processes begin to undermine the inherent vitality. And here the death rate is steadily increasing, especially among the most active in professional and business life, and because of their importance to the community their loss is a distinct one when they pass away before their work is complete. As insurance men we must ask ourselves the question, "Is there not a way, a means whereby we can, to at least a perceptible extent, stop this loss?" Many, through overwork or too strenuous a life, become exhausted in vitality and are wrecked on the rocks of middle life. There are chemical and nervous causes for this physical deterioration. Paton holds that perfect metabolism of advanced life is governed largely by the internal secretions of the ductless glands. Emotions such as care and grief very powerfully influence ductless glands with the secondary effect of slow degeneration.

Life insurance companies must point out these facts and medical men must make the application of either cure or prevention. This must cost money, but the result attained will prove a great gain in the end. The highest function of our government is not to make millionaires out of a few or to become wholly absorbed in governmental finances and affairs, but to advance to the highest degree the health, intelligence and morality of its citizens. The greatest asset of any nation or any life insurance company is the health of its citizens or members. Thousands are going on year after year without the slightest knowledge of the condition of their kidneys, heart, liver, digestive organs or blood pressure, paying no attention to these tired, overworked and long-suffering organs. This is persisted in by thousands who have no knowledge of the consequence. Regular examination will discover the tendency to trouble before it runs into disease. It is beyond doubt that this increase can be traced to our mode of living, with its nervous strain, our dissipation and our disregard of the need for daily rest and exercise, together with excesses and indiscretions in eating and drinking. If the urine could be examined at intervals of six months to one year, nephritis would be detected in its incipiency, and steps could be taken to bring about a cure before it become chronic and incurable.

In these strenuous times, if a man past 40 wishes to prolong his life, he should undergo a thorough physical examination every six months. Disease may be insidious and progressive for months or years before the sufferer is aware of the fact. Hence, at least a blood pressure and urine examination are necessary, because the individual imagines himself in perfect health. This will prolong life and decrease mortality after middle age, and at the same time it will be advancing the cause of humanity.

Negro Health Week Observed

The eighth annual observation of Negro "Health Week" was duly observed April 2 to 9. Lectures, moving pictures, child hygiene, the sanitation of public places, and community responsibility for health conditions marked the health demonstration. The Negro shared the general improvement in death rate, as shown by the census returns.

Girls who have been brought up in the Hospice of Mexico City which cares for 1,500 destitute boys and girls will be provided early this year with a home in which they may live after they have become self-supporting through trade or occupation learned at the Hospice.

Milk as a Factor in the Nation's Health

A Full Time Health Department is as Necessary as a Full Time Fire and Police Department

By J. G. TOWNSEND, Surgeon, United States Public Health Service, Washington, D. C.

Good health demands plenty of milk. It supplies the body with necessary materials in exceptionally healthful and economical forms. An abundant supply of good milk is of national importance.—C. F. Langworthy.

IN A previous article,* the factors necessary in safe milk production to prevent disease were briefly discussed, but this knowledge avails us nothing if, in knowing what to do and what not to do, measures are not taken to capitalize this knowledge, especially by the medical profession.

The education of our citizenry is the mightiest weapon at our command, not education in its narrow, restricted sense—for the average, thinking individual resents in a degree being advised he needs education—but an honest effort to bring the milk problem before him in such a way that he may properly visualize its true significance. This vision by all of what safe milk means and what disease producing milk means would be a foundation stone in the building of sanitary reforms. Conversely, as told in Holy Writ, "Where there is no vision, the people perish."

We See What We Are Taught

There can be no better place to initiate this visualization in the human mind than in the schools as soon as the child is old enough to grasp and appreciate what is being taught. The teaching of hygiene and public health in our schools as a part of the curriculum is becoming more intensive and is encouraging, but it is doubtful whether enough stress is placed upon the "milk question." In the presentation of these vital facts to the children in the schools, some seed will fall on fruitful soil, and future dairymen, milk producers, and milk products manufacturers will have inculcated in their minds sanitary laws, which should be as inviolable as the laws of right and wrong.

How milk should be produced to save or prolong the life of the baby is what every mother has the inherent right to know, but how can she know unless the medical profession aids her in realizing these things? Lectures, moving pictures, interesting pamphlets, and newspaper stories provide ways and means to tell the milk story to the public. The National Government is cognizant of this and has distributed literature on the subject. The Department of Agriculture has ten suggestions for milk consumers, outlined in a pamphlet, as shown below:

Ten Suggestions for Milk Consumers

Keep Milk Clean, Covered, and Cold.

1. Buy only the best milk obtainable. It is cheapest in the long run.
2. Consult the health department before selecting your milk dealer.
3. Buy only bottled milk if possible. Dipped milk is often dirty and deficient in cream.
4. Take milk into the house as soon as it is delivered, and place it in the refrigerator immediately. Bacteria increase rapidly in milk which stands in the sun or warms up, and such milk will sour quickly.
5. Keep milk in the original bottle in the refrigerator until the moment of serving. Milk which has been poured from the bottle should not be returned to it.
6. Keep the bottle covered with a paper cap or an inverted tumbler, to prevent the entrance of flies and dust, which may carry dangerous bacteria into the milk.
7. Keep the refrigerator clean and sweet by means of proper drainage and frequent washing with scalding water and sal soda, since milk quickly absorbs unpleasant odors and becomes less palatable.
8. Wash milk bottles as soon as emptied, by rinsing first with lukewarm water and then with hot water. If there is an infectious disease in your house, do not return any bottles except with the knowledge of the health department and under conditions which it may prescribe.
9. Return empty bottles promptly, and do not use them for anything except milk. Remember that they are the property of the dealer and represent cash.
10. Remember that clean, milk, properly cared for, is one of the best foods obtainable. It is nourishing, digestible, and usually economical.

United States Department of Agriculture,
Bureau of Animal Industry,
Dairy Division.

Keep Milk Clean, Covered, and Cold.

The United States Public Health Service is constantly alert to the necessity of raising the milk standard, and much literature on the subject has been, and is now being, distributed to those who are interested. The following pamphlets are indicative of what the Public Health Service has to distribute on this health problem:

Safe Milk. An Important Food Problem. Supplement No. 31 to Public Health Reports.

Milk and Its Relation to the Public Health. Hygienic Laboratory Bulletin No. 56.

Report of the Commission on Milk Standards Appointed by the New York Milk Committee. Reprint from Public Health Reports, No. 78.

Methods and Standards for the Production and Distribution of "Certified Milk." Reprint from Public Health Reports, No. 85.

A Homemade Milk Refrigerator. Public Health Bulletin, No. 102.

Standards for Determining the Purity of Milk. Reprint from Public Health Reports, No. 295.

Standards for Milk, Their Necessity to the Welfare of the Dairy Industry. Reprint from Public Health Reports, No. 318.

Relationship of Milk Supplies to Typhoid Fever. Reprint from Public Health Reports, No. 380.

Diphtheria. An Epidemic, Probably of Milk Origin, at Newport, Rhode Island, and Vicinity. Reprint from Public Health Reports, No. 430.

Dried Milk Powder. A Review of British Experience. Reprint from Public Health Reports, No. 473.

Treatment and Disposal of Creamery Wastes. Reprint from Public Health Reports, No. 496.

Safe Milk for the Small Town. Reprint from Public Health Reports, No. 497.

Dried Milk Powder in Infant Feeding. Reprint from Public Health Reports, No. 588.

Studies of Reconstructed Milk. Reprint from Public Health Reports, No. 608.

Commission on Milk Standards. Reprint from Public Health Reports, No. 634.

Antineuritic Vitamine in Skim Milk Powder. Reprint from Public Health Reports, No. 689.

The Growth-Promoting Properties of Milk and Dried-Milk Preparations. Reprint from Public Health Reports, No. 690.

In the rural sanitation studies, as conducted by the United States Public Health Service, much attention is paid to the milk question by lectures, personal talks, and visits to dairies and creameries.

During the late war, when the Service had charge of extracantonment areas, or zones five miles around the camps in this country, much stress was laid upon the importance of pure milk delivery to the military forces and civil population. This work was actively carried on in fifty-one zones in all parts of the United States and much propaganda for better milk was inaugurated and many

*The previous communication on this subject was presented in the February issue of The Nation's Health. Approved for publication by the Surgeon General.

inspections accomplished toward this end. In many places, the work was continued by the local authorities after the Public Health Service officers completed their work at the close of the war.

The group picture in Figure 1, showing various phases of the milk

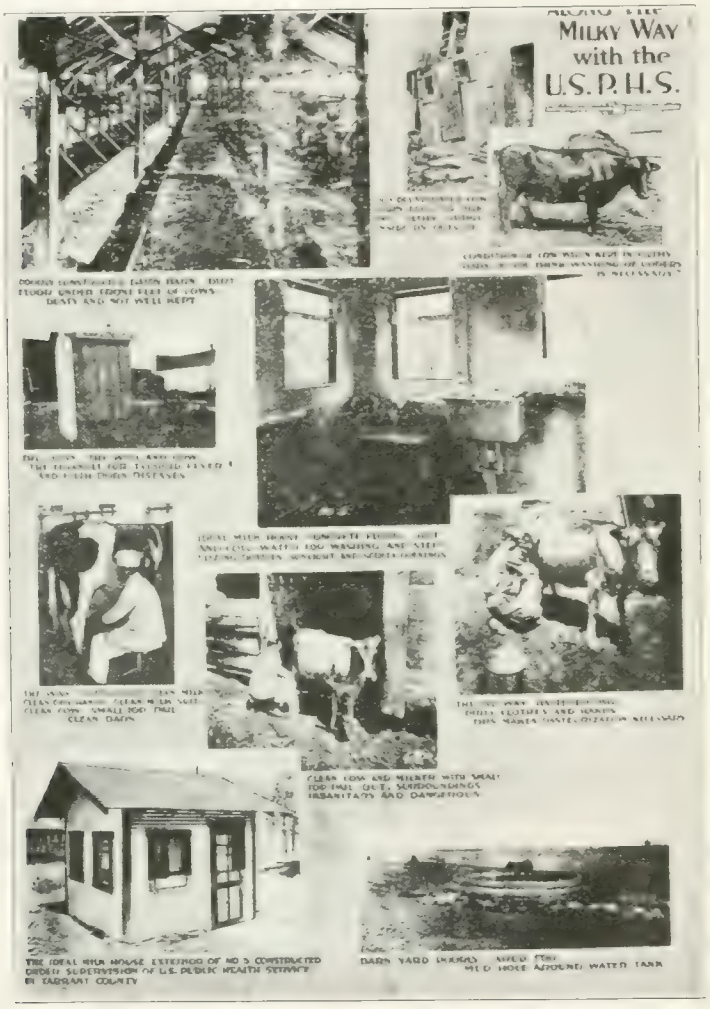


Fig. 1. This group picture was used by the Public Health Service during the war to illustrate an article in a camp magazine.

industry, was published, with an appropriate article, in the weekly magazine of one of the largest mobilization camps in the country during the war. The men in this camp were from the West and a number of them were, in their way, very familiar with dairy farms, but this article published in their own military magazine put the matter before them in a new light, so that many of them in the dairy business could put into effect, as a peace measure, what they had learned as a war measure.

To quote from the Secretary's Annual Report to Congress (fiscal year, 1919), relative to the assistance given the local authorities by the Public Health Service in the control of milk supplies in the various cantonment areas:

Special emphasis was laid upon the sanitary condition of the dairies. It was demanded that the barns and milk houses be remodeled or rebuilt to meet an approved standard. A sanitary method of excreta disposal was instituted and general sanitary conditions bettered. A physical examination of all employees and milkers, together with vaccination against smallpox and typhoid fever, was also required. In many cases where tuberculin testing of cattle was not already required this was instituted.

Many improvements in the methods of producing milk were inaugurated, special emphasis being placed upon —1, all udders being thoroughly cleaned before milking; 2, all milking done with dry hands or modern mechanical milking apparatus; 3, the use of the small top milk pail; 4, properly straining the milk; 5, proper cooling; 6, proper sterilization of utensils; 7, prompt delivery.

The importance of properly supervised pasturization was made plain to the producers and handlers of milk, and in all instances possible this was insisted upon, which resulted in the establishment of many new pasteurizing plants and the remodeling and enlarging of previously existing ones. It was urged that all restaurants, soda fountains, cafes, hotels, etc., use pasteurized milk delivered in original containers.

The Government is interested, and, through its appropriate departments, is doing its best to practice preventive medicine along these lines, but, in the last analysis, the problem is one for the local communities to solve through the state and local departments of health.

Health Supervision Side-Tracked

Adequate full-time health officers, with dairy divisions in the county and city health departments, are by no means common. It is all too frequent to find in cities, with populations ranging from 25,000 to 150,000, a part-time health officer, and that is all, placed in office for political reasons, engaged in a busy private practice (which takes practically all of his time), and yet, as a side issue, responsible for the health of the community. It is all wrong but, no doubt, will continue until it is more thoroughly realized that a *full time* health department is as necessary as a full time fire and police department and that the prevention of death is of equal importance with the prevention of fire or theft of personal belongings.

Full Compliance Necessary

The full time health officer can do much in spreading the gospel of safe milk production by the means already indicated, by tactful, sympathetic inspection of dairy farms, and, of most importance, by untiring efforts in perfecting the passage and enforcement of a milk ordinance. The provisions of a milk ordinance, in detail, depend somewhat on local conditions, but fundamentally should prevent fraud in adulteration and insist on milk production according to measures outlined in the previous article. A milk ordinance should not be too "wordy" but clear, concise, and to the point, stringent enough to exact full compliance before milk or milk products can be brought into the community, but not to extremes, whereby unnecessary hardship will result in this vital industry to the producer, or which make it difficult in enforcement by the health officer.

Inspections of dairy farms are, of course, necessary, the number of inspectors depending upon the amount of appropriations to the health department. At these inspections, each

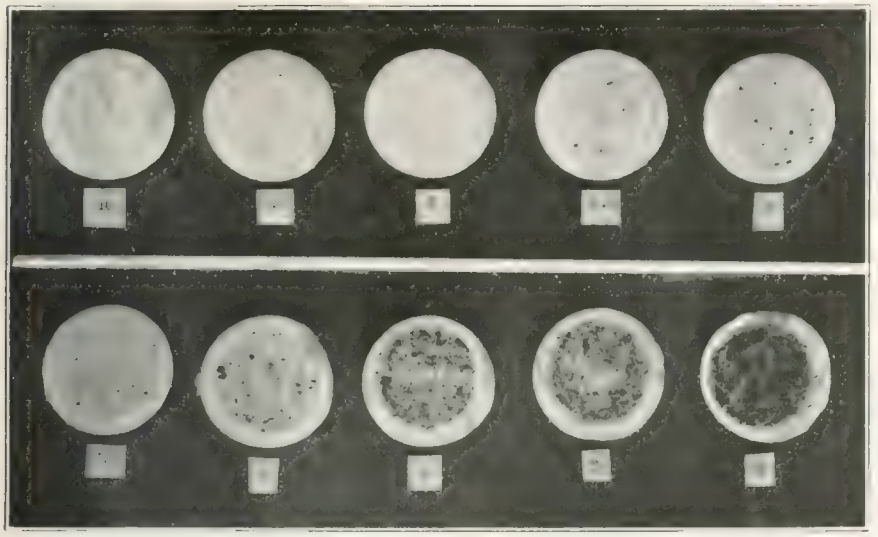


Fig. 2. Filter pads, showing residue from various grades of milk; 10 to 9 represent milk from ideal farms. It is left to the imagination to picture farms producing milk of Grade 0.

dairy should be scored on an approved form as to cleanliness, methods of operation, etc., and the dairyman advised when he is not complying with the terms of the local ordinance in force relative to milk production. These inspectors must be high type men, men who know the business and its practical working, who can tell the dairyman how to correct unnecessary practices by constructive criticism, who, knowing the psychology of the dairyman, can deal with him in a kindly, helpful way, but firmly, so that the milk producer will do the right thing because it is right and not merely because the law provides he must do it in order to stay in business.

Milk should be inspected upon its entrance into the community governed by the milk ordinance, and samples taken for bacterial count and temperature. Milk registering higher temperature than that allowed by law should not be allowed to be sold.

The inspection reports and the record of successive samples give the health officer an index on all dairies supplying his territory and after a while he knows in a general way what to expect from each one.

One of the best methods to exact compliance with the milk ordinance is the arrest and punishment by fine of those who regard the law lightly and who willfully violate it. In this regard, the importance of the "question" must be appreciated by the judiciary, who, in sustaining the conscientious health officer in his efforts by imposing sentence on the guilty dairyman, play a signal part in this public health drama. (The drama is often a tragedy when the parts are not properly played.)

It has been my experience in health work that a few good fines in court, as reminders that a milk ordinance is not to be regarded lightly, go a long way in insuring sanitary milk production on the farm. Aside from the financial loss which occurs to the dairyman, there is a certain amount of business embarrassment due to unfavorable publicity, which naturally follows, and, as such sentences are rare, it is safe to assume that much publicity does follow.

A rather spectacular and very forceful method for the local health officer to utilize in obtaining public support for better milk is by the use of the "sediment test." This test consists in pouring the contents of a milk bottle through a cotton filter pad, which fits over the mouth like a cap, and all foreign substances such as manure, hair, organic dust, etc., are held in the meshes of the filter and show up plainly on the white background.

Figure 2 represents filters containing sediment in various degrees, graded accordingly. It is not hard to imagine how milk is produced which filters through the pad marked zero, and, conversely, dairymen should be credited with the type of their product, as indicated by filters marked 10 to 8.5.

It is easy to arouse public interest by placing on public display in prominent show windows a number of these filter pads containing residues of various descriptions. The pads should all be numbered and the respective dairies known by number to the health officer. Appropriate legends over these pads are useful, such as: "Are you interested in knowing how the milk you feed your baby is produced?" or, "Pads showing dirt filtered from milk taken in this community, which pad represents the milk from your dairyman?"

In this way public interest is aroused by visible observations of uncleanliness, which it is impossible to demonstrate in speaking of bacterial uncleanliness.

The periodical publication of bacterial counts in the local newspapers has been resorted to and stimulates the dairyman to a keener competition in keeping his count down. This was most effective means during my service as health officer of a western city.

The "milk question" is ever with us and ever will be as long as milk occupies a place of dietetic prominence, as long as milk can carry in its wake disease and death, and as long as modern civilization brings local communities into closer contact and decreases distances between places more remote.

It is important that the measures taken to safeguard the supply should be common sensed; adequate to obtain desired results, but not crippling to this vital industry. Indeed, those engaged in the production of milk and its products should be encouraged in keeping alive a clean, pure business.

The dairyman's life is hard. His overhead expenses are great and capital and equipment are necessary if he would put his product on the market according to modern health standards. The public, therefore, should be willing to pay a fair price for milk known to be safe, as it would for any other commodity of high grade and known value. A few cents more per quart for certified or inspected milk, as health insurance, may increase the span of life beyond the allotted four score years and ten or, at least, to that accepted goal.

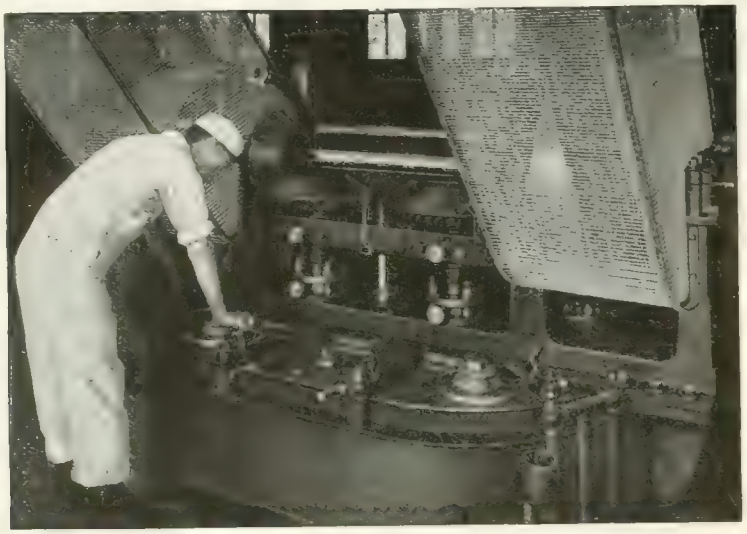
Hygienic Instruction in Public Schools

Recent announcements from Mr. D. J. Norton, director of health education in the Rochester, N. Y., public schools, indicate that self-governing and self-instructive methods of teaching hygiene to children in the public schools will soon be organized in every school in Rochester. Each grade will be organized into a club and each row of pupils in a room into a health team. A system of checking on health duties and of rewards for their performance is devised to stimulate the interest, and practical training in sanitary supervision will be included in the duties prescribed.

Food Knowledge and Food Prejudice

LEGISLATION against the handling of filled milk through interstate commerce has recently passed the senate. Inasmuch as this law makes mandatory the distribution of the product within circumscribed fields and under fixed conditions, it definitely limits the use of an unquestionably useful and valuable food material at a time when the nutritional needs of the country are such that the Nutritional Committee of the National Research Council has found it necessary to develop a cooperative plan for nutritional research in order to work out economic data on the whole subject of nutrition. The spirited debate that preceded the passage of the filled milk bill is highly interesting reading and reveals another cogent reason why the public, through food knowledge, needs to overcome certain definite food prejudices. The fight against filled milk was not waged against dried milk as such. It was not claimed that the product is improperly labeled, nor that it is impure, or that it is lacking in definite food values. The fight was based on the fact that certain fats other than dairy products are added to the manufactured product. It was held that improper use of the commodity might bring about untoward results, and, what was essentially a trade war, was waged,—and won—on a public health basis. All of which shows that wars waged on a public health basis may in this age of enlightenment count upon legislative support, but that if the collective action is to be intelligent, or directed toward general improvement in such matters, public opinion must fortify itself at least with the fundamental facts, so that knowledge and not mere prejudice shall become effectual.

The incident recalls what happened some years ago when margarin, a wholesome and economical food, and one which enables the conservation of materials which would otherwise constitute waste, was legally saddled with the opprobrious term "substitute" and has ever since had to cope with the popular prejudice that attaches to the word substitute as well as the handicap of a discriminating tax of one-fourth cent per pound on the uncolored and ten cents per pound on the colored product. Nowhere else in the world is such a food tax imposed. The people are right to demand proper labels, adequate food values, and purity of product; but if the whole people are to have adequate rations, no source of the economical production of satisfactory foods should be cut off.

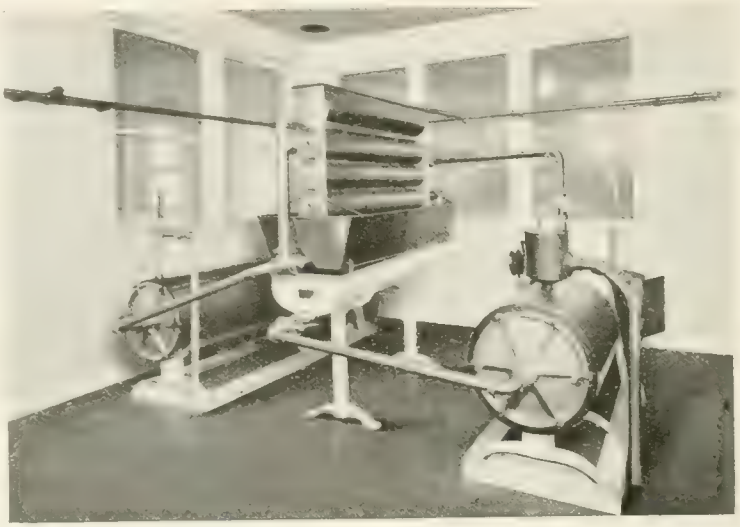


The solid ingredients of oleomargarin are melted, mixed with the liquid oils, and churned together with milk. Later the surplus moisture is removed, and the small granules of the product are worked into a complete and plastic mass.

The opposition to margarin is waged on the basis of the vitamin content, no mention being made, of course, that the deficiency of certain fats is rated on the basis of animal experimentation on rigidly exclusive diets nor that any such deficiency, real or fancied, is readily supplied in a varied dietary. It is not brought out that the vitamin quotient is by no means constant in dairy products nor are they so uniform in standard as some of the manufactured products. Carter, Howe, and Mason[1] have expressed themselves on this point as follows: "Oleomargarin is a satisfactory substitute for butter; it is often more desirable than some good grades of butter. . . . Containing, as it does, a higher percentage of stearin, we might expect to find oleomargarin less readily absorbed than butter; experience has shown, however, that the losses in digestion are the same for the two products."

Oleomargarin is a youngster among

1. Carter, Howe and Mason: Nutrition and Clinical Dietetics, Lea & Febiger, New York, 1921.



The milk is carefully tested by expert chemists and, if of satisfactory standard, it is cleaned and re-pasteurized. After cooling it is conducted through pipes to glass-lined tanks where other ingredients are added in measured amounts.

foods. It came into being the latter part of the last century. Considering how far back some of the essentials of our diet go, oleomargarin may well be classed with the younger generation of products. Most of the everyday staples of the dietary have come to us quite casually and without preliminary research. Oleomargarin, however, was first conceived as a scientific idea, then it became a subject of experiment, and finally evolved as a food. It was a scientific discovery to fill a definite need. It was achieved in France under the auspices of Napoleon, at the time of the Franco-Prussian war, by Mege Mouries, a French scientist, who won a substantial reward for his efforts in this direction. Years of development have intervened between those days and now, despite trade opposition, the increasing public approval of the highly developed product springs not only from its fine flavor and good quality, but from a growing appreciation of the absolute sanitary control of the entire process by which it is made. Modern manufacturing methods, fundamental purity in every component part, government inspection throughout,—all these have made oleomargarin a food for connoisseurs. Every part of the process of manufacture is marked with infinite care and natural wholesomeness is characteristic of every ingredient.

Oleomargarin is made from oleo oil, neutral, and vegetable oils, salt, milk, and sometimes a certain percentage of the best creamery butter. The solid oils are melted, mixed with the liquid oils, and churned together with milk. After the mixture is chilled by contact with an ice water spray it is allowed to ripen until the whole mass becomes permeated with the milk flavor, when it goes to the worker, where salt is added. In this process the surplus moisture is removed, and the small granules of the product worked into a complete and plastic mass. It is then ready to be packed into cartons or tubs. From the time the raw materials enter the plant until the freshly boxed cartons are packed into cases, no hand is allowed to touch the product.

The mixture is chilled by contact with an ice water spray. After the whole mass has been permeated with the milk flavor it goes to the worker, where salt is added. When completely processed, it is packed in cartons or tubs. No hand touches the materials from start to finish.

The process described involves the use of animal and vegetable oils, but a similar product is made from material entirely vegetable in character, principally the oil from peanuts and ripe cocoanuts. Seven or eight years ago nut margarin was an unknown article in the United States, but during the recent years its production has reached a point where it is about 40 per cent of the total product. The materials and the manufacturing costs are less and it is sold at a price lower than the standard price for oleomargarin made from animal oils.

There is no reason for current argument against supplementing the dietary with these manufactured products, nor for any remnants of prejudice against their use. All of the component materials,—salt excepted, are found in practically every kitchen every day in one form or another and, separately, no question ever arises as to their wholesomeness or food value. Fat is essential in the dietary. Prepared fats are similar to the unextracted fats, for the processes of manufacture are essentially physical ones. The necessary amount of fat required per day is not exactly known, but the minimum has been estimated at from twenty-five to fifty grams per day. Fat is a much more concentrated food than carbohydrate or protein in the sense that it yields, because of its lower state of oxidation, a greater amount of energy for a given weight, fat yielding 9.0 calories per gram, or 4,082 calories per pound; and carbohydrates 4.0 calories per gram, protein 1,814 per pound. It is therefore the most economical means for storing energy against future need. Prepared fats are similar to the unextracted fats, for the processes of manufacture are essentially physical ones. Langworthy and Holmes in Bulletin No. 310 of the United States Department of Agriculture reported on the principal fats as follows:

Taste, appearance, texture are factors of food values amply provided for in manufacturing processes. Pure milk, perfectly pasteurized, scientifically ripened in rooms of white tile flooded with daylight, takes care of the natural flavor of the finished product.

Fats Studied—	Coefficient of Digestibility Per cent
Butter fat	97
Lard	97
Beef fat	93
Mutton fat	88

Both fats and carbohydrates are used chiefly in the production of energy. Their rôle in the structure of the body, while little understood, is highly important. A higher fat content is called for in the diet of those whose work is arduous. The fat content of the blood increases during feeding for the absorbed fat is poured into the blood stream above the liver. The fat begins to be absorbed about two hours after ingestion and reaches a maximum in about six hours. The fat content of the blood is fairly constant except at times of active absorption from the blood. When large quantities of fat are being utilized, as in fasting or diabetes, there is often an increase in the blood fat. Because of their relatively low vitamin content certain fats have been erroneously considered as thereby discredited for food, but in this connection it is to be remembered that these statements relate to the controlled and minimum maintenance rations of the experimental laboratory. Fats and carbohydrates are chosen for the energy values, and the vitamin necessities are easily taken care of in the ordinary American diet by the use of other foods.

Digest of Sanitary and Hygienic Advance

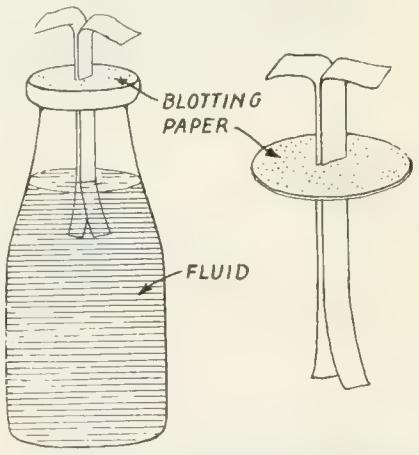
THE comprehensive nature of sanitary science demands on the part of the health worker omnivorous reading and a selective talent for which the average health officer's busy life leaves little time to exert. Medical journals, civic publications, legislative reviews, laboratory abstracts, and of late even the popular magazines are featuring health projects as news. We present herewith a digest of several outstanding contemporary articles and some pertinent suggestions which should be of general interest:

Seawater for Mixing Antiseptic Solutions.—It sometimes happens that fresh water is not available for mixing solutions of antiseptics in quantity. In such situations seawater may be used with carbolic acid, formaldehyd, bi-sulphite of soda, thymo-formol, sulphate of copper, cyanid of mercury and oxy-cyanid of mercury, since these chemicals are unaltered by the action of salt water. Chlorid of zinc, bichlorid of mercury and the alkaline hypochlorites are actually improved by the action of sea water.

"Millions" in the Control of Malaria.—The use of Gambusia affinis or other carnivorous, viviparous fishes for the destruction of mosquito larvae is a measure of proved efficiency. Failures may be attributed to the escape of the "millions," their destruction by enemies or their hindrance by water-weeds or grasses. If the edges of ponds are cleared and if the surface-feeding fish are not disturbed by natural enemies, they will promptly destroy mosquito larvae. There are at least twenty-six species of fish in the United States considered suitable for use against the eggs and larvae of mosquitoes.

Trees as Mosquito Breeders.—In conducting anti-mosquito campaigns, it should be borne in mind that tree-holes such as occur in forks and clefts are sometimes prolific breeding places and are frequently overlooked. A simple method of drainage is by siphons made of cotton waste and tacked in place.

Formaldehyd as a Fly Poison.—The efficiency of formaldehyd as a fly poison depends upon its freedom, when exposed to the air, of formic acid and methylamine. It should be colorless, free from fishy odor and neutral in reaction. The following formula



An arrangement which provides an acceptable manner in which to use fly poison. Flies cannot fall into the receptacle and the blotting paper permits constant access to the poison.

(*Bul. Entomolog. Research. Vol. XI, pt. 1*) is recommended:

10% Formaldehyd	5 parts
Clear Lime Water	50 parts
Sugar	2.5 parts
Water	42.5 parts

This is best used in a bottle shown above so arranged that flies cannot fall into it. This is necessary since their cadavers will render the solution acid in reaction. In the mouth of the bottle there should be placed a piece of blotting paper as shown in the accompanying drawings (Fig. 1). When formaldehyd solution is used as a fly poison it is quite necessary that no water be available in the room for, if so, the poison will go untouched. This is important and has been experimentally demonstrated.

Culture Medium for B. Diphtheria.—Loeffler's medium has the disadvantages of opacity the requirement of large amounts of serum. Captain S. R. Douglas recently reported to the Royal Society of Medicine that he had secured the best results by the use of a 1 percent solution of potassium tellurite added to melted agar and used with trypsinized serum. The diphtheria bacillus colonies have black centres, contaminating organisms being practically colorless.

A New Pediculicide.—A non-toxic, non-irritating, inexpensive and efficient pediculicide with bile-salt as the vehicle is described by Peters in the *British Medical Journal* of February 18, 1920.

The compound consists of:

Sodium taurocholate	10 grams
Ol. eucalyptol	50 grams
Water to	1,000 c.c.

Dissolve the bile salt completely in water, add the eucalyptus oil, and shake well.

To use, rub in thoroughly until the hair is completely wet. Put on a rubber bathing cap or wrap the head in a towel. Leave on over night and in the morning wash well with soap and water. A fine tooth comb is used daily for two weeks.

In a series of more than five hundred cases, Peters noted in 23 per cent, a second application was unnecessary; two treatments were required in 63 per cent and a third application was necessary in the remaining 14 per cent. The formula has as its underlying theory the fact that bile salts assist the passage of emulsions of fats through membranes by lowering surface tension and hence assist the penetration of the louses eggs by oily emulsions. The non-inflammability of the mixture and the fact that it destroys all forms except the most re-

cently deposited eggs, add greatly to its value.

The Closure of Schools on Account of Infectious Disease.—Despite the fact that the strategic advantages of the school in the control of communicable disease has been recognized for a number of years, whenever there is an outbreak of epidemic disease, almost the first control method urged by the general public is the closure of the schools. In remote rural situations where the school constitutes the main contact point for the area or when the bulk of the teachers are afflicted with the prevailing infection, it is a measure worthy of consideration. As a rule, and particularly in urban centres, the idea will be quickly dismissed by the thinking health officer who realizes that by such an act he deprives himself to a large extent of an accurate knowledge of what is going on in a large and important block of the population, thus hindering very considerably follow-up work and other control operations. Furthermore, the idle children roam the streets at such times thus establishing a multitude of fresh contacts for the reception or distribution of the prevailing disease. Sometimes the health officer will be overridden by the popular clamor but he should steadfastly resist attempts at school closure on account of an epidemic.

How Long Is Measles Contagious?—M. Baur (*Münch. Med. Woch*) states that while the incubation period of measles, 13 to 14 days, is well recognized, the contagious period is less well defined. He had the opportunity of studying carefully the question at the clinic of the University of Cologne and concludes as the result of this epidemiological investigation that the contagious period is limited to the catarrhal stage and the first day or two of the eruption. He places the period of maximum infectiousness at the time when the prodromal stage is just ending and the exanthematous stage is just beginning. He believes that the disease ceases to be contagious twenty-four hours after the appearance of the eruption. In this connection the studies on experimental measles reported by Duval and D'Aunoy in the *Journal of Experimental Medicine* (1922, XXXV, 2, p. 257), are interesting. These research workers found that thirty-six hours prior to the eruption and twenty-four hours after the temperature became normal, guinea pigs did not react to the blood of human measles cases, and that the guinea pig reaction is produced with human blood during the stage of eruption. This would seem to indicate that prolonged isolation is not required in the prevention of the spread of measles.

Herpes Zoster and Varicella.—While a Scotch verdict must still be rendered on the question of the identity of or connection between varicella and herpes zoster, a considerable amount of data indicating that the relationship is much more than accidental is accumulating. The occurrence of the disease in persons who have been in close contact with herpes zoster cases and the apparent immunity of persons who have had herpes zoster to varicella infection has raised the question if at least some cases of shingles are not aberrant forms of varicella.

The Whys and Wherefores of Sleep

WHY an individual must sleep away one-third of his existence no one has yet satisfactorily explained. What is sleep, anyway? Is it, as Marie de Manaceïne puts it, merely "the resting time of consciousness" and the lowering of physiological processes becomes possible only when the dominating desires of the waking hours are held in abeyance? Mosso states that the amount of air inspired is one-seventh of that used during a period of quiet wakefulness. Amar says that the static expenditure of energy is in sleep about fourteen-hundredths of that in waking hours. Carbonic acid elimination is decreased, while the absorption of oxygen is increased. The heart beats more slowly; the pulse is less rapid, and the general arterial pressure is lowered. The brain is anemic, while the blood supply to the skin is greatly increased, which accounts for the increased production of sweat. The internal temperature of the body is lessened. The movements of the stomach and intestines are enfeebled. All the secretions of the body are diminished, save those of the skin.

It is significant that, while the purposive activities of mankind are fatiguing, his physical automatizations pursue their ordered rhythms without pause and without fatigue. What part of the body rests during sleep? Is it not true that, asleep or awake, the heart pumps its stream, the lungs expire and inspire, and the stomach, liver and other organs perform their functions? The skin is practically twice as active during sleep as during the waking state, and even the hair and nails continue to grow. Is not hearing still acute, as proved that any sound capable of attracting the attention during the waking period will disturb the sleeper? Will not unsavory odors, or badly tasting material placed in the mouth, awaken the slumberer? Do not dreams show the mind to be active? Do we not change position, are we not conscious of pain, do not persons sleep on horseback, etc.?

Physiology of Sleep

Sleep is rhythmically recurrent and a necessary function. Loss of sleep is worse than starvation. Animals deprived of food for twenty days and which have then lost more than half their weight, may still be saved by judicious feeding; but, completely deprived of sleep, they die in from four to five days, and this in spite of the most careful feeding and other care. The biologic theory of sleep, formulated by Claparedé, supposes that sleep is a defensive factor of the body and that its purpose is to ward off fatigue. Repose and sleep are considered to be the inevitable consequence of the law of rhythm which appears to govern life and which constitutes its means of defense. Many observations of the phenomena of sleep have been made incidental to studies on fatigue. Massage and sleep are among the influences which Amar states as favoring muscular power. Massage or kneading of the muscles repairs them. Sleep also is restorative. Theoretically, the energy expended by the muscles in work should be capable of restoration by increasing the amount of ailment, but this cannot replace sleep. Amar's experiments indicate that at least seven hours of sleep are necessary to re-establish the forces which have been upset by a day's work. It should be at night and free from disturbances, he says.

From the standpoint of fatigue there is a considerable body of ex-

*The facts on the physiology of sleep in this article are drawn from "Yours for Sleep," by William S. Walsh, M.D., E. P. Dutton & Co., New York, 1920.

periment in regard to the profitable length of a school day, and of a work day, but very little expert advice as to the amount of sleep required as a restorative. Walsh is inclined to consider twelve hours as necessary at the age of four years, ten hours between the ages of six and ten. From the ages of ten to sixteen years at least nine hours are required and adults as a rule must sleep at least seven or eight hours out of twenty-four in order to retain their equilibrium. In old age the requirements are less. In cold climates more sleep is required than in warm or temperate climates. The first few hours of sleep are the deepest, and the amount of sleep indulged in should be gauged to suit the individual rhythm.

Psychology of Sleep

Psychologists have long been inclined to regard sleep as an affair of the mind, to consider disturbances of sleep as varying degrees of consciousness, and to interpret the uncensored dream thoughts in terms of the real, though perhaps unconsciously hidden, wishes of the subject. Dreams not pleasurable and which are remembered are detrimental in many ways. They interfere with sleep, or, if the sleep remains unbroken, the nutrition and repair going on at the time deviate from the normal. Again, harassing dreams may be equivalent to a shock during the waking state. Certain types of dreams may indicate an unstable nervous system, or may be the forerunners of disease. They are matters for the consideration of the physician rather than the psychologist. Since wishes have themselves been reduced to the physiological basis of segmental tensions, barring physiological disorders, it is safe to ignore the vagaries of the dream interpreter and address ourselves to the conditions of sleep and the factors which favor restorative slumber.

The mind, however, must be considered in sleep processes. The farther away from the brain a member is, the more lightly it sleeps. A sleeper can be awakened more easily by tweaking his toe than by touching his face or head. Fifty-nine per cent of persons can awaken any time they decide upon before going to sleep. To prove mental control even during the sleeping condition Rivers, apropos of the selective action of certain conditions of awakening, cites the doctor who is awakened even by the movement of wires which precede the ringing of his night bell, while he is undisturbed by the crying of his child to whose slightest sound the mother immediately responds. Awakening is determined, not by physiological demands, but by predispositions of a psychological kind.

The Hygiene of Sleep

This perhaps accounts for the fact that suggestion forms an important part of almost any treatment for insomnia. Belief in their ability to sleep is absolutely essential for those whose insomnia is the result of mental causes. Normal sleep, according to Walsh, is a gift we all have had at one time, and may still have. Since normal sleep is gauged appropriately to the internal bodily rhythms, it is necessary to retire at a regular hour. Mental habit has much to do with it. Effects of light and sound which disturb cerebral quiet are to be eliminated. Rattling window blinds or other defects should be remedied. The walls of the bedroom should be restful and neutral in color. The bedding should be as simple as possible, not too absorbent, but of a nature easily kept in a sanitary condition. The coverings should not be heavy. Several thin coverings are better than a single one of equal weight, since the air that readily finds access between them is not conducted. The sleeping room should be airy. "Nail windows open," says Walsh. The temperature of the bedroom should preferably not exceed 60 degrees.

Posture and Sleep

Psychologists say that dreamless sleep does not occur, a statement they would find hard to prove. But if dreams are the expression of wishes, and wishes are segmental tensions, then the question of posture during sleep, and the choice of a bed that both supports and yields according to the requirements of the situation, become of primary importance. On what side of the body should we sleep? Most people prefer the right side, but this is largely a matter of habit. Popular opinion holds that by this cardiac action is not embarrassed and the emptying of the stomach is facilitated. Some observers think that the reason inflammation of the right lung is more frequent than that of the left is due to the fact that lying on the right side favors stasis of the blood on that side. Inflammation of the bases of the lungs occurs more often than of the apices, again referable in some cases to posture in sleep. Sleeping on the back is a fruitful source of dreams, probably due to interference with the cerebral circulation, secondary to a compression of the abdominal aorta. Which side to sleep on is, after all, but a minor point. We must choose one side, and there is no weighty reason why one side is not as good as another. On the subject of posture in sleep Walsh says:

Individuals in good health may be able to sleep comfortably without pillows. This practice, which is to be encouraged, tends to prevent round shoulders and contributes to a cure when such a condition arises. Lying prone with one arm extended above the head and the leg opposite drawn up, which attitude may be repeated on the opposite side, can take the place of pillows. Posture during sleep is a matter of no great importance. One pillow, small, flat, and moderately hard, should be enough for most individuals. In cases of sleeplessness due to arteriosclerosis even three may be necessary. In arteriosclerosis it is common to be sleepy in the daytime and wakeful at night, because the recumbent position sends more blood to the brain. A semi-erect posture, therefore, favors sleep in such cases.

With regard to waking, Walsh says: "Remembering that sleep tends toward a stasis of blood in the various larger organs and in the extremities, we should, before arising, lie on the right side a few minutes, then on the left, then on the stomach, and finally on the back. This simple practice is often very efficacious in removing the angina pains, asthmas, lumbagoes, so often found in anemic individuals and which are often due to improper positions during sleep. The muscles can then be gently exercised by stretching, after the manner of a yawn, so as to remove the stiffness then existing in them occasioned by repose. It also serves to minimize the slight shock accompanying a sudden change to the upright position. A few minutes exercise on getting up, taken preferably in the open air, starts the day right.

There is no specific for insomnia. The underlying cause must be ascertained and removed before a cure can be expected. Even then the ability to sleep often needs to be wooed back. There is an art in making yourself comfortable and also an art in procuring pleasant dreams.

Cancer American Plague

Cancer, which kills 80,000 persons in the United States each year and has a 90 per cent mortality of all those afflicted, has become the great American plague, states L. Duncan Bulkley, M.D., in *The Medical Record.* Against the 5,656 deaths from cancer in New York City, there were only 5,225 deaths from tuberculosis, an excess of 431 for cancer.

Can White Men Live in the Sun?

THE baneful effects of too much sunlight on the white man is discussed by Chas. H. Huestis, M.A., D.D., of Red Deer, Alberta, in the *Canadian Journal of Medicine and Surgery.*

The belief in the benefits derived from the sun's rays is of recent origin and not derived from the history of the race which points out the reverse. Animal life was of aquatic origin. The water, absorbing the ultra-violet rays of sunlight, protected the cells which could not otherwise have existed. Most animals are nocturnal in habit, passing the day in sleep and the night in prowling. The negro prefers to sleep in the daytime, coming out at night to dance and sing under the moon. Animals that live in the daylight are protected from sunlight by fur and feathers and by pigmentation of skin.

Such instances tend to prove that nature and instinct protect animal life from too great stimulation by sunlight, indicating that while small quantities of sunlight are doubtless beneficial, in large measure they are harmful and even fatal.

In the case of man, reason enters in to contradict instinct. Even then the distribution of the races upon the earth bears out the fact that the skin of man is dark or light in proportion to the sunniness or clowdiness of the land which is his true habitat. Cloudy, foggy lands are inhabited by big blonds; sunny lands by little dark men.

The modern craze for sunlight is extremely harmful, Mr. Huestis believes. A baby exposed to the sunlight on doctor's orders is apt to be over stimulated which results later in anemia and arrested development. Likewise much eye trouble in children is due to this undue exposure to the sun.

The custom, too, of placing hospitals so that every room is flooded with light for as much of the day as possible is not good therapeutics in the opinion of Mr. Huestis. Better the protection of the patient from the too stimulating rays of the sun.

White men have never been able to live permanently in sunny countries, the writer points out. India, which has been ruled by white men for generations, has no third generation of whites. White men conquered the Indians in North America. Under its sunny skies there has developed an aggressive force unparallelled in the history of the world, but this over stimulation has produced nerve exhaustion. In Alberta, Canada, effects of long continued sunshine are apparent. Newcomers at first feel a great urge to activity but after a few years the disintegrating result of the actinic rays of the sun is felt.

The writer believes that white men will not be able permanently to colonize west Canada outside of British Columbia west of the mountains. But the evil effects of sunlight may be mitigated so as to make life there more endurable. The typical house of the west, the bungalow built on the ground with wide shaded verandas, is the right sort of house. Windows should be protected by green blinds or shutters which can be closed during the sunniest parts of the day but will admit ventilation. Tree planting would be of great aid for trees absorb much sunlight as well as afford shade.

The school day should be shortened and the school year rearranged so that examinations would come in April. Habits should be changed with more emphasis on rest and relaxation. In the matter of dress it would be wise to imitate inhabitants of the South. If white is worn as an outer garment, the under garments should be black or yellow to intercept the sun's rays. The warm bath should be substituted for the cold plunge so popular with Britishers as the latter is too stimulating.

In conclusion, the author states it as his opinion based on history and observation that it is doubtful if white men, especially those of light complexion, can long survive in a sunny country.

London Graduate Medical Work

MENTION has been made previously to the somewhat belated efforts on the part of some of the members of the medical profession to make London a center for medical postgraduate training in Europe. Before the war there was practically no postgraduate instruction of an organized nature in London. Berlin, Vienna, and Paris, to a lesser extent, held sway in this field, Berlin and Vienna catering especially to American medical men who were desirous of learning European methods of medicine and surgery.

At that time the British medical profession seemed not only indifferent to attracting foreign and American postgraduate students to their schools of medicine and hospitals but paid only slight attention to postgraduate training. That wonderful original thinker and skillful surgeon, the late Jonathon Hutchinson, with the foresight which was one of his most distinctive characteristics, was impressed with the need for maintaining medical and surgical knowledge up to date and was instrumental in founding the London Polyclinic. But the profession was generally lethargic and the scheme languished, in fact, was almost stillborn. However, after the war some earnest and energetic medical men and surgeons, prominent among whom were Sir Arbuthnot Lane and Mr. Philip Franklin, an American-born nose and throat specialist practising in London, saw the possibilities, when Berlin and Vienna were *hors de combat* at least temporarily, of London taking their place. The Fellowship of Medicine and Post Graduate Medical Association were established with headquarters at the house of the Royal Society of Medicine, the secretary of which Sir John Macalister was enthusiastic for the carrying out of the project.

At last a definite move has been made in London and courses have been drawn up. Hospitals cooperating in the plan are: Bethlehem Royal Hospital, S.E.; Cancer Hospital, Fulham Road, S.W.; Chelsea Hospital for Women, Arthur Street, Chelsea, S.W.; Hospital for Consumption and Diseases of the Chest, Brompton, S.W.; Hospital for Epilepsy and Paralysis, Maida Vale, W.; Middlesex Hospital, Berners Street, W., National Hospital for Diseases of the Heart, Westmoreland Street, W., Paddington; Green Children's Hospital, W. Royal Westminster; Ophthalmic Hospital, King William Street, Charing Cross, W.C.; St. George's Hospital, Hyde Park Corner, S.W.; St. Mark's Hospital for Diseases of the Rectum, City Road, E. C.; St. Mary Cebone General Dispensary, 77 Welbeck Street, W.; St. Peter's Hospital, Henrietta Street, Covent Garden, W. C.; Western Hospital, Seagrave Road, Fulham, S.W.

The foregoing hospitals gave a six weeks' course in general medicine held from January 9 to February 18, 1922. A syllabus of a surgical course will be issued soon.

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Jules Schevitz, 1898-1922

We have to announce the death in Oklahoma City on March 22 of Jules Schevitz, a member of the Board of Editors of The NATION'S HEALTH. The death of Mr. Schevitz cuts off a promising career in public health. He was only twenty-four years of age, yet he had impressed his work upon the country and was known in all health organization circles. He studied health work under Dr. T. W. Sedgwick at the Massachusetts Institute of Technology; went to Oklahoma in 1918 where he built up the splendid Public Health Association of that state, meanwhile serving as a member of important national health committees. Mr. Schevitz had been for some time a frequent contributor to THE NATION'S HEALTH and for some months had been identified as a member of the Board of Editors.

The Rising Tide of Heart Disease. Remote Conditions Involved.

ALMOST 11 per cent of the total number of deaths in the Registration Area of the continental United States in 1920 were, according to the Bureau of the Census, the result of organic diseases of the heart. This is an increase of 1.5 per cent since 1910. In that year the death rate from heart disease per 100,000 of population was 141.5; in 1920 it was 141.9; it is in the proportion of heart disease deaths to deaths from other causes that the real increase has occurred.

Any disease-group causing such a percentage of the total number of deaths is worthy of careful analysis and the application of definite measures looking toward reduction. Accurate analysis of these figures is not possible, nor is it absolutely necessary since, after all, vital statistics are not surveying transits but signposts indicating in a general way the direction toward which the body politic is tending. It may therefore be said that, while the rate is only slightly greater than it was a decade ago, a study of the percentage of the total deaths shows that pneumonia is the only single item which, as a Captain of the Men of Death, approximates that of organic disease of the heart.

From the epidemiological viewpoint this classification is of little informative value, since it is based upon a pathological and clinical condition rather than upon the cause itself and, before any well planned campaign for the control of organic heart disease can be launched, some knowledge must be had of the factors in its production.

There has been a tremendous advance in the clinical diagnosis of these conditions, the methods and instruments of physics having, so to speak, opened the pericardium for the internist to view exactly what is taking place in the living heart. This, with the increase in the number of necropsies, serves to emphasize the important place of heart disease in the production of mortality. The average practitioner makes far more careful reports of death than formerly and the registration area now embraces 82.2 per cent of the estimated population of the United States. This makes it possible to collect more accurate data regarding the prevalence of organic heart disease and this makes it appear as if there was a larger number of deaths from cardiac lesions every year. Whether or not this is true time and study alone can tell, but it would be remarkable in view of the way in which the infectious diseases are being controlled and eradicated, if there was not a coincident reduction in the death rate from heart disease, since this condition is in the vast majority of cases a secondary process supervening usually upon some remote infection.

This renders the mortality statistics for heart disease exceedingly misleading. It is as though death certificates reading "Primary cause: organic disease of the lungs. Secondary cause: tuberculosis" were accepted by registrars of vital statistics. If all deaths were listed according to the remote rather than the proximate cause, there would be a corresponding increase in the proportion of deaths from syphilis, gonorrhea, scarlet fever, and the other infections, with a simultane-

ous fall in the percentage of deaths from heart disease.

The child hygiene movement and the antivenereal campaign, no less than the other measures for the improvement of the public health, will undoubtedly reduce the amount of heart disease in the future. In fact, a comparison of the vital statistics of the past with those of recent years, indicates that there has been a reduction in the percentage of deaths from heart disease up to the fiftieth year of life, with a corresponding increase thereafter. This may mean an improvement in the methods of treatment or a better safeguarding of the damaged heart by the instrumentalities of public health. Whatever may be the cause, it is an index of the increasing security of human existence.

The practising physician may do much toward placing the statistics of heart disease on a more accurate basis, by reporting deaths under the original cause, whenever it is possible to determine it. He also should recognize the danger of a mild heart affection in childhood becoming an organic lesion in adult life if neglected in youth. A great many of these accidents of after years may be prevented by the careful regulation of life during the period of convalescence from the acute infections.

The Training of Public Health Workers

THE conference on the future of public health and the education of sanitarians held under the auspices of the United States Public Health Service at the American Red Cross Building in Washington on March 14 and 15 promises to be an important landmark in the history of the public health movement. All the prominent public health educators of the country and many of the leading public health officials were represented in the discussion, the conference members including seven college presidents, twenty-six deans and directors of schools of hygiene, public health and medicine, thirty-three professors of public health and allied subjects, and such typical representatives of the practical public health movement as Doctors Armstrong, Biggs, Brown, Cumming, Frankel, Fronczak, Ireland, Kelley, Levy, Lumsden, McCormack, McLaughlin, Snow, Stitt, Vaughan, Vincent, White and Williams.

The first session was devoted to a review of past developments and present standards in the education of public health workers with special emphasis on some of the newer aspects of public health work such as mental hygiene, child hygiene, the economic aspects of public health, physical education, industrial hygiene and public health education. In the second session an attempt was made to outline the qualifications for the public health worker of the future in which it was made clear that the most vital problem is the production of what was called "the general practitioner of public health." Next followed a discussion of the reasons for the deficiency of trained sanitarians and of methods by which the public health career can be made more attractive. The Wednesday morning session was devoted to a discussion of the details of courses which should be included in the curriculum of the public health expert with special emphasis on the importance of directed field work under actual working conditions, which is the analogue of the clinical training received by the medical student in the hospital. After a series of concluding addresses, Dean Edsall of Harvard summed up some of the more important points at issue, and a permanent committee of nine members[1] was appointed, with power to enlarge its number to fifteen, to consider "whatever questions it sees fit and take whatever action for further conference may seem wise in order to continue the activities that this conference has started."

The conference did much to clarify the present situation and to inspire its members with a new realization of the importance of their task. It is quite clear that the principal obstacle in the path of the public health movement is the lack of sufficiently numerous well trained leaders. There are three factors in this problem: the man, the school, and the job, all of which are in need of improvement. Schools of public health have grown up in many universities during the past few years and are probably today able to train more and better men than are available and to fill more and better positions than are open to their graduates. Yet the education given by these schools is in great need of standardization and improvement particularly along the line of practical field experience. The public demand for trained health workers while behind the potential capacity of the schools of public health is probably ahead of the actual supply of good material. Here, too, however, the public must come to a realizing sense of the need for securing security of tenure and liberal compensation to a class of experts more practically important to the community than any others which it employs. The weakest link in the chain is, however, the supply of suitable candidates and in particular we need to recruit a much larger proportion of the ablest young men

[1] Dr. C. C. Bass, New Orleans; Dr. D. J. Fraser, Boston; Dr. W. H. Howell, Baltimore; Dr. E. O. Jordan, Chicago; Dr. A. J. McLaughlin, U. S. Public Health Service; Dr. M. J. Rosenau, Boston; President R. L. Wilbur, Palo Alto; Dr. E. G. Williams, Richmond; Professor C.-E. A. Winslow, New Haven.

graduating from the medical schools of the country. Professor Jordan presented to the Washington conference a most disheartening series of replies to a questionnaire addressed to the students in four leading medical schools showing the lack of knowledge of the public health field and a failure to realize its potentialities of service. Perhaps more than anything else we need a campaign of education to enlighten medical students in regard to the field of public health and to interest those of them in whom the social viewpoint can be awakened, in the still largely untilled fields of public health.

Investigating the Effect of Occupation on Health

GREATLY widened limits of inquiry into statistics and into the underlying causes of disease must be placed to the credit of industrial medicine. It is not too much to say that the necessities of industrial medicine may require the entire reorganization of our health statistics as without it no proper check may be had on the physiological effects of occupation and therefore no adequate estimate of the value of medical service. The need to base conclusions on morbidity investigations rather than on mortality rates as in the present system is brought out in the recent address of R. E. Rusher[1] before the Royal Statistical Society in London. Mr. Rusher reviewed the difficulties which countered the attempts of the Industrial Research Board to make an accurate study of industrial morbidity. Based upon statistics referring to the iron and steel trade, the boot and shoe industry, and the laundry trade, he concluded that (1) age has the greatest influence upon morbidity, and next to this, occupation; (2) occupation has more influence than has either locality or density of population, but the influence of the latter cannot generally be dissociated from that due to occupation; (3) there are no reliable statistics in this country (England) of morbidity among female lives; (4) no statistics exist of the sickness experienced by the community at large corresponding to those published concerning mortality.

The advantage of investigating the causes of morbidity in any particular occupation is that, were any given industry shown to have an excess of sickness, by analyzing into causes of morbidity the particular disease contributing to excess can be detected and the direction pointed out to ameliorative research. Morbidity shows its effect much more rapidly and is preferable as a guide.

1. The Statistics of Industrial Morbidity—A Retrospect and a Scheme for Development by R. E. Rusher, F.J.A., Jour. of the Royal Statistical Society, January, 1922.

Although the occupation is the chief factor in sickness affecting the community as a whole, nevertheless there is little available information regarding male lives and none concerning female lives. Inquiries are inadequate without statistical knowledge of the incidence of sickness for the particular industry involved. Mortality takes too long to register to be effective as a guide to health work and is misleading, inasmuch as it records only the terminal condition and the occupation at the time of death. With the present trend of occupational disease to become compensable, it behooves each industry to make specific studies as to its morbidity rates and industrial medicine to evolve a comprehensive industrial toxicology based upon the precise analysis of existing conditions.

Epidemiological Conditions in Eastern Europe

AMONG the first concrete fruits of the organization of the health section of the League of Nations we may welcome Number 1 of *Epidemiological Intelligence*, a bulletin to be issued in the future by the health section of the League as important material accumulates bearing on international health. The present number is of peculiar interest and importance since it gives us our first clear picture of health conditions in Soviet Russia. The tables and diagrams for the most part cover the year from September, 1920, to October, 1921, inclusive, and give us by districts the reported cases of typhus and relapsing fevers, dysentery, cholera, typhoid and scurvy in Finland, Latvia, Lithuania, Poland, Russia, Czecho-Slovakia, Austria, Germany, and Constantinople. These tables are supplemented by striking charts and diagrams and by a special study of the statistics of disease in the Red army which are of course much more complete than those for the civilian population as a whole. The case reports for most of the countries considered are obviously far below the true figure but they indicate very clearly the general cyclic changes which have taken place. Typhus reached a very high peak both in Russia and in Poland in the winter and early spring of 1920 and fell to a relatively low value in 1921. During the past few months, however, an alarming increase has been manifest in the northeastern and northern governments of Russia while a temporary breakdown of the sanitary cordon between Poland and Russia led to a material increase of typhus even in Warsaw during last December and January. The Polish government and the epidemic commission of the League of Nations are now apparently in control of the situation so far as Poland is concerned

but it is obvious that the post-war ravages of epidemic disease in Russia are by no means over.

The prompt distribution of statistical material of the sort which is contained in this first number of *Epidemiological Intelligence* will be of incalculable value to the sanitary authorities of the world.[1]

Charitable Institutions Liable for Negligence

WE ARE convinced that "sound reasons sustain the great weight of authority to the effect that a public charity should not be held liable for the negligence of the servant in whose selection the hospital and its managers have exercised due care. On the other hand, such an institution is liable when it fails to exercise such care."

In these words the Supreme Court of Ohio upheld a verdict against a public charitable hospital for damages caused by an incompetent nurse. The decision is not a new one in American courts but it is one of the most unequivocal declarations yet made limiting the exemption from liability of charitable hospitals. The courts of New York, Texas, Washington, Rhode Island, Kentucky, Maine, and New Hampshire had held similarly that "the general principle protecting charitable institutions from actions for negligence does not include negligence that results in the service of incompetent, unskilled, or careless servants."

On the other hand the courts of Massachusetts, Missouri, Pennsylvania, Tennessee, South Carolina, Michigan, and Illinois, have upheld the view that charitable institutions are exempt from liability for negligence. The Massachusetts Supreme Court went so far as to say that "a public charitable hospital is not liable for negligence of its managers in selecting incompetent subordinate agents, any more than it is for the negligence of subordinates selected with care." The conclusion of most of the courts favoring the view is stated thus: "When a public corporation has no property or funds but what have been contributed for a special charitable purpose, it would be against all law and all equity to apply the trust funds thus contributed to compensate injuries inflicted by the negligence of its agents and servants."

Sweeping aside the above doctrine and also the doctrine that patients who accept the care of the hospital waive the right to damages for negligence, the court declares, "It (the hospital) cannot watch or control the countless acts and movements of its servants, but it can and should exercise care to see that only careful and competent servants minister to stricken patients who are within its walls."

Moreover, while it may well be said that donors of funds for the praiseworthy objects of charitable hospitals do not contemplate the diversion of the funds for the payment of damages for the numerous acts of servants referred to, yet they necessarily realize and appreciate that they give their donations to those who have the management and control of the institution, and that every principle of justice requires that they use care in the development and maintenance of the property and in the selection of servants who have the oversight of patients." The court further quotes approvingly from a North Carolina case where it is said: "The beneficiaries of charitable institutions are the poor who have very little opportunity for selection and it is the purpose of the founders to give to them skillful and humane treatment. If they are permitted to employ those who are incompetent and unskilled, funds bestowed for benefits are diverted from their true purpose and under the form of a charity they become a menace to those for whose benefit they are established.

The decision in Ohio may be overruled as to the particular case upon rehearing; the legislature may specifically exempt charitable institutions from all liability, which is an extremely doubtful possibility; the courts of other states may follow the view of non-liability held in Massachusetts, instead of the view in this case. But in the meantime the decision gives ground for speculation as to its effect.

The decision obviously has a direct and practical importance for those who administer charitable institutions. The decision fixes responsibility upon the governing boards of such institutions to exercise due care in the selection of these superintendents and assistants. Reasonable care in the selection of assistants is all that is required. Will it not be likely to cause trustees to take a more active interest in the institutions they govern? Will it not require a greater knowledge of standards in the management of such institutions?

After Many Years the Philosopher's Skull Returns

THOSE who have read and pondered over the wisdom of the *Religio Medici* will be glad to know that the author's skull has rejoined the other remnants of his anatomy at St. Peter's Mancroft Church, Norwich, England, where they have lain since 1682. The story of the kidnapping in 1840 of this philosophic cranium and its

1. This and other publications of the health section of the League of Nations can be obtained through the World Peace Foundation, 10 Mount Vernon St., Boston.

final restoration to its first resting place in 1922, is not without its romance and touch of humor. Sir Thomas Browne, the original owner of the skull, was one of Norwich's most famous citizens. In some way his grave was opened and the skull stolen in 1840 and a few years later it found its way into the museum of the Norfolk and Norwich Hospital, where until recently it has been a highly prized relic. The vicar and church wardens of St. Peter's Mancroft, after eighty years of patient endeavor, have reached a friendly agreement with the hospital authorities who resolved at their last quarterly meeting, "That the skull shall be handed over to the church, on condition that it shall be reverently re-interred as soon as possible in the church near the supposed site of Sir Thomas Browne's grave, with the burying place suitably marked, and that before the skull is handed over a plaster cast of it shall be presented to the hospital authorities, and that it shall not be exposed in any way to the public as a relic of Sir Thomas Browne."

Rest noble bones collected here,
You lost your head for many a year.
A quaint philosopher of renown,
A doctor he, Sir Thomas Browne.
He's not the last, it may be said,
To lose his philosophic head,
But he's the first, I still maintain,
To get his brain-box back again.

Medical Education, Licensure, Public Health, and Hospitals

A STEP was taken toward better understanding, even if unity of opinion was not achieved at the recent Congress on Medical Education, Licensure, Public Health, and Hospitals in Chicago. There was a serious stock-taking of the years work and a definite statement made of the immediate problems confronting the medical profession. Granted that we have on the one hand a highly trained body of physicians and, on the other, many communities indifferently served, responsibility attaches to both sides. A community short of service must assume the onus of providing the physical equipment of laboratory and hospital which will make it possible to carry scientific medicine to the outposts. Iowa has evolved an effective scheme of community hospitals, a plan that has been commended in New York. Such local centers have everywhere proved the basis for radiating activities directed toward the conservation of human health. The people also were conceded to be the logical participants in plans for better education. Superstitious and unscientific cults thrive where the people are ignorant. Even exact science is distrusted under such a condition and no scheme of medical education is adequate that does not provide for popular education and popular support.

Inasmuch as the success of any enterprise depends first upon leadership in men, and second upon the cause itself, all medical men should have broader educational facilities and picked men should have special training. Particularly hampering is the lack of men qualified to act in the capacity of administrators. We have outgrown the system that trains physicians in the care of the individual patient, but does not fit them to handle community problems. The medical education of the future would better include the fundamentals of economics, civics, and the social sciences and some means provided to overcome the almost complete lack of facilities for training executives.

In the period of reorganization the physicians will lead if they are leaders, for reorganization means opportunity. It is a question not so much of methods as of men. It does not so much matter whether the Iowa plan of the community hospital as the center, the Ohio plan of making the physician felt through regional conferences, or the Alabama plan of constituting the state medical society the state public health association is followed, if ample educational facilities are provided for the people and the medical profession—fully alive to the people's needs—is on the job. It is a reciprocal relation.

PROVISIONAL estimates of the infant mortality rate in fifty-one cities on the basis of the estimated births for 1921 indicate a record low rate throughout the country, the extreme low rate of 47 per thousand being achieved by three cities,—Portland, Ore., St. Paul and Seattle,—the highest rate being 111 at Fall River, Mass. The outstanding lesson from a consideration of the falling rates is the uniformity of response to intensive health programs, again giving proof that to a large degree a city can fix its own death rate.

WITH the completion of Volume II the *International Journal of Public Health* suspends publication, its place being taken by *The World's Health*, the Bulletin of the League of Red Cross Societies under a new cover and a new name. The first issue of The *World's Health* offers as its leading article "The History of the Red Cross," by Georges Milsom. An account is given of the second meeting of the General Council of the League of Red Cross Societies and pertinent information is included on world health conditions.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

Editors for the Association

THOMAS CROWDER, M.D. WADE WRIGHT, M.D

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Advantages of a Model Industrial Cafeteria

Over Six Thousand Served Daily Table d'Hote Luncheon Gratis

BY LEE K. FRANKEL, PH.D., THIRD VICE-PRESIDENT, METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY

THE proper feeding of the world hinges upon the solution of two problems, production and distribution. When men have learned the secret of adequate production and of uniform distribution this problem will cease to vex their minds. Fortunately for the reader as well as the writer this article does not attempt to offer a solution of this tremendous problem. It only seeks to explain the solution arrived at by the Metropolitan Life Insurance Company of New York City as applied to its Home Office employees, comparatively few in numbers yet numerous enough to populate a town with more than six thousand men and women. It is true that this company faces only half the problem, for the matter of production is eliminated. Its problem is, however, sufficiently complicated to demand a high degree of executive ability and thorough training in things pertaining to a thoroughly modern commissary.

During the Great War the Metropolitan Life Insurance Company was brought face to face with the depleted labor market. It was found impossible to man the kitchen and dining-rooms adequately. The help which could be obtained was very mediocre as well as very scarce. In self-defense a cafeteria system was inaugurated. It is this cafeteria system which this article is interested in exploiting for it has proved to be as satisfactory as it is economical, and other large business organizations may find in it the solution of their own problem of feeding a large number within limited time and in a limited space.

That it has proved economical both in time and money should not be surprising as the modern cafeteria is the latest development in the service of a quick meal at minimum cost to both management and patron. But this method of feeding is not as simple as it appears to the patron who is apt to think it the least complicated and easiest method of serving food. In reality it is a very complex problem, especially when the cafeteria is an industrial one offering a midday meal without charge to so large a body of employees as are housed in the home office of the Metropolitan. The problem is still further complicated when the meal is a complete table d'hote luncheon such as this company serves.

It will be recognized at once that to feed more than six thousand persons within the short period of two hours is

Corner of kitchen of Metropolitan Life cafeteria. A pastry cook and baker at work [illegible] the baking of all breads and pastry and the making of [illegible]

no small task. They must be fed rapidly but without haste. They must be served simply but with extreme neatness. They must be served in limited space, but without crowding. Each meal must provide a well balanced, ample ration, but there must be no waste through over-provision. To these problems must be added those presented by the cost of food, service, equipment, fuel, and light. All in all it is a task that only a clever, experienced, and specially trained mind can handle successfully.

To accomplish this without confusion, hurry, or waste the Cafeteria Department of the Commissary Division is divided into nine units or serving counters, the luncheon time is divided into three periods of thirty minutes each, and the office force is separated into nine groups of 250 employees each. For the sake of organization a unit is accounted to comprise one serving counter plus that section of the dining-room taking care of the number of seatings apportioned to employees assigned to that particular counter. Each of these units is assigned three lunch periods designated A, B, and C, corresponding to 11:45 a.m., 12:30 p.m., and 1:15 p.m. To each of these lunch periods is apportioned a group of 250 employees. This arrangement permits each unit to serve 750 individuals daily, and the nine units to serve 6,750 individuals daily.

In the ordinary commercial cafeteria much time is spent in searching counters to learn what the management offers. The Metropolitan saves this waste by displaying a menu on placards in easily read type. The menu is divided into sections lettered A, B, C, D, E. Each section of the menu is a properly slotted panel into which black cardboard strips are slipped. The items of food are printed on these slips in clear, white letters. Upon A are listed all hot and cold dishes, except soups. B is reserved for vegetables. C contains the soups. D is used for desserts. On E is listed the beverages, tea, coffee, milk, cocoa. Each of these sections is placed in plain sight over the counter from which the items upon it are served, and indicates whether one or more choices are allowed. So that employes may make no mistakes, intentionally or otherwise, as to the unit and lunch period to which they have been assigned, each of them is supplied with a ticket on which is stamped the unit and lunch period which the holder must attend. This assures each unit against overcrowding. These tickets are

By staggering the hours of eating, the cafeteria is enabled to serve 6,750 individuals daily between the hours of 11:45 a. m. and 1:15 p. m.

signed by the employees and must be presented to receive a meal. Should one be lost or forgotten application must be made at the ticket desk for an emergency ticket. Exceptions are only granted after consultation at the ticket desk.

All trays are inspected as the employes leave the serving counters. This was found to be necessary to preclude the possibility of an employe trying to make a meal of ice cream and dessert only. The empty dishes are left on the tables to be removed by table-cleaners.

This method has evolved an orderly, rapid service, but it is not as simple as the telling suggests. It runs smoothly and efficiently only because there is behind it a carefully planned and minutely carried out system extending from the manager's office, through the several departments, into the dining-rooms. It is not unlike a series of cog-wheels which pass an impulse from one to the other in orderly procession. A mishap to one involves the whole system in confusion and causes it to function badly. To avoid this the various assistants and sub-assistants have been selected with special care as to their fitness for the task committed to them.

Tracing the series backward, which means beginning at the serving-counters, we find five table-cleaners. These women remove the used dishes and trays and carry them to the washroom. At each counter are five counter-women who attend to the actual serving. Over these ten women is a captain who is responsible to a head-waitress for the proper functioning of the unit over which she presides and the checking up of the items received. The head-waitress, who has the supervision of all the units, must see that the captains, counter-women and table-women perform their duties, and that each unit has its full quota of food, dishes, and silver.

The hot foods are brought to each unit by an especially assigned cook who supervises the proper distribution of this food into portions. The ice cream is cut and served by a baker, each unit having one baker for this task. The distribution of pies, pastries, bread, ice and beverages is in charge of a superintendent of pantries and dishwashing. This man is responsible for the daily supply of these items for each unit, as well as the supervision of the washing of dishes. His assistants use the morning hours, when there is no washing, for cutting bread, pies and cakes, for distributing them and the beverages, and for any other general work necessary for furnishing everything required by the units, excepting food articles from the kitchen.

We have now worked back to the kitchen where all the food is prepared and cooked. An experienced chef presides over the kitchen. He supervises the preparation and cooking of the food and its distribution into proper quotas for each unit in

accordance with requisitions issued by the manager. One of his assistants, known as chief pastry cook and baker, is responsible for the baking of all breads and pastry and the making of all ice cream. This includes the preparation and distribution of these articles. It is unnecessary to state that all the equipment of the kitchen and washing room is of the most modern type and kept in the most sanitary condition.

Given a certain menu to prepare and the raw material in proper quantities it is a comparatively simple process to turn out palatable dishes. The real problem, after the system of service and distribution has been chosen and organized, is the calculation of the amount of food items needed to meet the demand. This must be done so accurately that there will be neither an oversupply nor an undersupply. The Metropolitan solves this really perplexing problem by means of a carefully kept system of stock bookkeeping, the records of which run back for about twelve years. A secretary-stenographer keeps the books of this system. In them is recorded each day the number of meals served, the proportion of each item on the daily menus, the number of portions of each kind of food on the menus required by each unit, and the prices of every item purchased. From these records is calculated each day for the following day the amount of the various food items necessary to provide the luncheon for the number of individuals expected.

The make-up of the menus devolves upon a trained dietitian whose chief duty is to provide a balanced ration. This is subject to approval by the manager. The dietitian also controls all details of the menus and is charged with seeing that the food is served in an appetizing manner.

A unique feature of this cafeteria is the store-room bookkeeping. This comprises a stock-sheet for every article purchased and carried in stock. The sheet is so ruled that entries of receipts and issues to the different sections of the Commissary Division can be so made that a monthly balance is easily and readily obtainable. These records make it possible to ascertain the consumption of all sorts of food stuffs for the purpose of calculating the costs per capita. A similar sheet is kept for silver, linen, glass, and china.

The directing and controlling agency of this complicated machinery is the manager. He buys all supplies, sanctions all changes, and is responsible to the President of the company for the efficient and economic conduct of the Commissary Division.

And what are the advantages of this cafeteria system over the older table-service? For one thing it saves money. Under the table service system the weekly payroll of two units totaled $384, whereas under the cafeteria system it is only $296. This is a saving of $88 per week, or $4,576 per year. The cost of installing the two first units was seven thousand dollars. In other words, each of these two cafeteria units paid for its installation in one year out of the difference in cost over the old system. As there is less handling of china there is an attendant saving in breakage amounting to almost 50 per cent. A considerable saving in food wastage has also been noted, owing in part to the fact that employees take only what they wish from the counters.

Added to these opportunities for saving is the fact that the food reaches the employees in better condition. Being served from heated receptacles directly to the patron it is hotter, there are less chances for the entrance of dirt, and it can be served much more neatly and in much quicker time, all of which makes the food more appetizing and therefore more nourishing.

In conclusion, it must be said that this system of cafeteria service is applicable only to an industrial cafeteria where a table d'hote luncheon is served without charge to the employees. For this type of cafeteria it is efficient, economical, and satisfactory to both management and employes, which in the last analysis is the real test.

New Jersey Medical Society Welfare Work

A Welfare Committee has been appointed by the president of the New Jersey Medical Society, a part of whose activities have to do with legislation to require a single standard of qualifications for all who seek unlimited privileges to practice healing arts. There is also the intention to seek an amendment to the Workmen's Compensation Law, which would provide for what physicians think would be a fair compensation for both the hospital and the physician in the care of persons injured in industry.

It was decided to ask the State Board of Institutions to place a physician on the board of managers of the various state institutions in which the care of the health of the inmates is a large factor. The Committee also recommended that a physician be placed in an executive position on the State Rehabilitation Commission.

Air Tank Relieves Paralysis

International

The Brooklyn Navy Yard maintains as part of its equipment a compressed air [illegible] divers suffering from "caisson disease" caused by working about water [illegible] normal condition. The paralysis is caused by the [illegible] which results in too much nitrogen being [illegible] the [illegible] break only when the sufferer is again subjected to compressed air. The patient above, Torres Olson, a diver, whose paralysis disappeared [illegible] air tank.

Oil Camp Sanitation in the Southwest*

Proper Living Conditions Will Decrease Camp Labor Turnover

By C. P. BOWIE, Petroleum Engineer, U. S. Bureau of Mines, Washington, D. C.

IT is a regrettable fact that very few of the employers of labor in rural districts in the United States ever seem to consider the value to their enterprises of maintaining sanitary livable camps for the men in their employ. This seems to apply especially to the oil operators of our mid-continent fields.

One need only to visit almost any of the oil communities of Texas, Oklahoma, Louisiana, or Kansas, now passing through the "boom" stage, to be impressed by the necessity of more and constant work on the part of Federal and State bureaus, as well as on the part of the operators themselves, to the end that the deplorable living conditions in some of these districts, so far as public health is concerned, may be improved.

Many oil men, operating in districts east of the Rocky Mountains, employ the contract system of drilling the wells, which almost precludes the possibility of the companies building up camps or small towns over which they may exercise personal supervision as to housing and sanitation. That is to say, the companies bargain for the development of their properties with a contractor who furnishes all the materials and labor necessary to the drilling of the wells and work appurtenant thereto for a stipulated price, thereby relieving themselves of all responsibility other than their financial obligations to the contractor.

As a result of this system, the contractor hires his drillers, tool dressers, and laborers, how and where he can. Most of them are brought in from outside districts and if oil is "struck" and the field gives promise of commercial production the oil workers are followed by freighters, "jitney" drivers, restaurant keepers, inn-keepers and the innumerable small trades-people who, with their families, go to make up the population of such districts. So it is that a trackless prairie sometimes becomes almost overnight the center of a community often numbering thousands of people who establish themselves in temporary buildings, tents, dugouts, lean-to shelters, and even within four topless walls of burlap, or in the open. These mushroom communities have been aptly termed "rag-towns".

The insanitation of oil camps is often excused by the statement that conditions are not "normal," that when the community has become established and oil is "struck," a sanitary system will be installed. Such an excuse has proved costly, and fires and epidemics have followed in the wake of such reasoning.

The wise employer knows that by maintaining the health of his workers and bettering their standard of living he has nothing to lose. Statistics show that the time saved from illness by good sanitary measures far exceeds the expenditure for sanitation. To locate the camp on high dry land with proper drainage, to insure a safe water supply, to install an adequate sewage and waste disposal system are the three main factors in camp sanitation.

Insanitation of "Rag-towns"

They have no water supply or a wholly inadequate one; garbage, decaying vegetable matter, tin cans, old rags, and paper, lie in small heaps about the temporary structures or are strewn promiscuously over the vacant places. For sewage disposal privies are built. Some of these are made from new lumber with rain-proof sides and roofs, hinged doors, and battens over the cracks. However, many are makeshifts, consisting of old boards on end, teepee fashion, or sacking hung on a frame about an improvised seat over a shallow hole, with no pretense of screening out the flies or affording protection from vermin. Practically all of these structures, the ones especially built for the purpose as well as the improvised ones are, except perhaps in the coldest days of winter, swarming with flies, reeking with filth, emitting noisome odors, and altogether so disgusting that the populace refuses to use them. The result is that privacy is sought under cover of darkness and the ground for acres about is defiled.

It is argued that while these facts are deplorable, they are the results of unusual circumstances and that matters will be remedied as soon as

Plate I. General layout of Pacific Oil Company Camp in Elk Hills District, Kern County, California. This camp illustrates what can be done at relative small cost for the welfare of the men.

*Published by permission of the Director of the United States Bureau of Mines.

1. Advisory Pamphlet on Camp Sanitation and Housing; Commission of Immigration and Housing of California, 4th Ed., November, 1915, p. 7.

2. Furnished through courtesy of the Pacific Oil Company.

3. For description of a composting pit with bill of materials, see Advisory Pamphlet on Camp Sanitation and Housing: Commission of Immigration and Housing of California, November, 1915, p. 50.

Plate II. Dining room, showing neat appearance of tables and open gas heater in corner.

conditions return to normal. But experience has shown that the so-called "normal" conditions never return before the community has been visited by a series of costly fires and epidemics. In fact, generally "normal" conditions do not return until the field has been proved a success or a failure, and this often takes months or years.

The responsibility for the betterment of such conditions is plainly up to the state governments. Broadly speaking, all states have legislation sufficient to cope with these exigencies, but the fault lies in the enforcement of the laws. This too often is left to the immediate community itself and rests in the hands of a few men who, because of their political aspirations, cannot afford by the enforcement of ordinances to run the risk of antagonizing their neighbors, or who are so engrossed in money gathering that they are indifferent to the responsibilities entrusted to them. Therefore, the refusal or neglect of someone to meet the social responsibilities which come with the hiring of human beings for labor brings hardship and unnecessary misery to a class of people (especially to the women and children) who are unable or indisposed to combat personal indignities which make for degradation, crime, and the social unrest already burning in uncared-for migratory workers the world over.

While society does not place the responsibility for these deplorable conditions upon the employer, nevertheless he is also a sufferer. If he would but stop to consider, surely he must see a material loss to his enterprise through "soldiering" discontented workers, petty strikes, and a force continually quitting. The oil operator who through his daring enterprise is adding so much to the wealth and prosperity of our nation should remember that after all it is through his leadership that human beings congregate in our oil fields and that with that leadership, morally at least, there goes also a measure of responsibility for the lives and happiness of these of his fellow beings. He can do much to add to their welfare and at the same time bring increasing prosperity to himself.

Flies as Disease Carriers

Experience[1] has shown that insanitary conditions will often result in a 25 per cent loss of working efficiency among the men. Suppose a camp of fifty men with an average daily wage of $5. A 25 per cent loss in efficiency would mean a daily loss of $62.50, or $1,875 a month. One roustabout at, say four dollars a day, would serve to keep the camp clean after it was once put in good condition; and an additional expenditure of $6 a day should provide necessary teams, extra labor, and repairs, so that $300 a month would cover the cost of good sanitation and the actual saving would be $1,575 per month, or $18,900 a year. From the first year's saving it would, of course, be necessary to deduct the initial cost of the various sanitary installations, but this for a camp of fifty men should at most not exceed $3,000.

Flies are the greatest of all disease carriers. They breed in manure piles, kitchen refuse, and human excrement. They are very often directly responsible for the spread of such diseases as typhoid, dysentery, diarrhea, and other intestinal disorders. If you dispose of the breeding places of the flies you dispose of the flies, thereby doing away with one of the main causes of camp sickness. This can be largely accomplished by proper disposal of the manure, garbage, and sewage. The flies that come into the camp from outside and sometimes relatively remote places where their breeding places are allowed to remain undisturbed may be captured in suitably constructed traps. A very efficient trap is described in Form 45-C of the Department of Health, Commonwealth of Pennsylvania. Sticky fly paper is also a convenient and effective means of disposing of these "stray" flies.

Some varieties of mosquitoes are carriers of disease such as malaria and yellow fever. Mosquitoes breed in stagnant, preferably dirty, pools. The females of some varieties lay eggs one at a time, others as many as three hundred, which float on the surface of the water in the form of a raft. In about two days, depending on the temperature, the eggs will hatch into larvae or "wrigglers" seen so frequently in rain barrels. The larvae must have water to live in, also they must have air. This they breathe through a tube a little to one side of one extremity.

Larvae can be destroyed by draining the places where water collects. Old tin cans, bottles, or any waste vessels that will hold water should be removed or destroyed. Tubs and barrels used for the storage of water for domestic purposes should be kept covered. Holes in tree stumps, roadside puddles, and depressions in rocks, should be kept free from grass and marshes should be drained. If the stagnant pools are too large or it is not practical to drain them, then they should be sprayed at frequent intervals with kerosene or crude oil. The oil forms a scum on the surface of the water through which the tube of the larvae cannot penetrate. They, therefore, die for lack of air. Large ponds may be stocked with fish, as fish feed on the larvae.

Location of Camps Important

A camp should be on well drained ground. This rule is important and must be followed even though the men walk a short distance to and from work. The living quarters, kitchen, and commissary houses should invariably be on the higher ground. Under no circumstances should surface drainage be from the corrals, stables, and chicken pens toward the living quarters. If the camp has promise of being even semi-permanent, careful thought should be

Plate III. Range and serving table in kitchen at Elk Hills camp. The hood above the range carries off smoke and odors.

given to its layout. It will pay to survey the site and prepare a contour map upon which the proposed structures may be located with due consideration to drainage and prevailing winds.

If houses are to be built they should be comfortable, roomy, attractively painted inside and out, and conveniently arranged for housekeeping. In warm climates or in parts of the country where the summers are hot, they should be provided with verandas and screened porches. The grounds about them should be improved with lawns and trees. This does not mean that an undue amount of money must be spent on such structures. A house that is conveniently arranged for housekeeping can usually be as cheaply built as one that is not; thorough painting preserves the wood and greatly lengthens its period of usefulness; lawns, flowers and trees yield dividends in contented workers, avoiding the losses by constant turnover in forces.

A good example of what can be done, at relatively small expense, looking toward the welfare of men employed in oil work is demonstrated in the accompanying illustrations[2], showing a recently constructed oil camp in Kern County, California. This camp is about twelve miles from Taft, in what is known as the Elk Hills district. This is an arid region having short temperate winters and long hot summers. Plate I shows the general layout of the camp. The buildings, being on the tops of the hills, afford ideal drainage conditions during the winter rains and a maximum amount of breeze in the summer time. The plate also gives a good idea of the screened porches. Guards protecting young trees may be seen in the foreground. Plate II shows a portion of the dining room in which may be noted the neat appearance of the tables and the open gas grate in the corner. Plate III shows the range and serving table in the kitchen and the hood above the range for carrying off the smoke and odors. Plate IV shows a refrigerating machine used to keep the food cool during the summer months. Plate V shows the garbage incinerator. One of the buildings at this camp is an up-to-date change room, fitted with lavatories, shower, and tub baths supplied at all times with hot and cold water.

Well Guarded Water Supply

A plentiful supply of pure water for domestic use is very important. If the source of supply is a spring, it should be housed in and carefully guarded against possible contamination. Cesspools or privy vaults should be so placed that pollution of the water supply is impossible. If a stream is the source of supply it should be protected from cattle and stock by fencing for a reasonable distance above the intake, and the intake should be carefully screened and cleaned as often as necessary to keep the water free from organic contamination. Wells, if used, should be protected against surface drainage and the same precaution as for springs should be taken against cesspools and privy vaults.

At temporary camps, garbage may be disposed of by burying it in the ground, but at permanent camps it should be disposed of either by burning or feeding to hogs. It should not be fed to chickens, as chickens will not consume such things as the peelings of most vegetables and coffee grounds, and these will afford breeding and feeding places for flies. If fed to hogs, the hogs should not be allowed to roam about the camps, but should be kept in pens which are kept clean, otherwise they also become a breeding and feeding place for flies, as even hogs will not consume coffee grounds and some varieties of melon rinds.

Sewage and Refuge Disposal

Manure piles are the favorite breeding places for flies. They should not be allowed to accumulate. Stables, when in use, should be thoroughly cleaned daily and the manure either hauled into the field and spread in thin layers on the land, placed in properly constructed compost pits,[3] or burned.

If manure is spread in thin layers in the field not to exceed one inch in depth, owing to rapid desiccation it soon ceases to be attractive to flies. The heat of the sun will kill the eggs and the larvae in a short time. Where it is not practical to dispose of manure promptly, fly breeding may be prevented by sprinkling it with a solution of hellebore. About one gallon of the solution should be used to every cubic foot of manure. Such treatment will destroy 99 per cent of all fly larvae present and the treated manure is not poisonous to chickens, neither is its value as a fertilizer impaired.

There is probably no one subject upon which sanitary engineers are more thoroughly in accord than the inherent vileness and danger, even under favorable conditions, of the open privy closet and cesspool as ordinarily constructed. Fresh sewage is not always injurious to health, nor is its odor usually very offensive, but putrefying excreta and kitchen slops, especially during hot weather, are not only most disgusting to sight and smell, but become breeding places of myriads of flies, which, as pointed out before, carry disease germs to be deposited on the food eaten by the workmen and their families.

Where camps are of a very temporary nature lasting not more than a few months, the privy type of toilet is permissible, but, as already stated, it must be kept at all times sanitary, and both the pit and the housing should be made and kept fly-proof. All openings, including knot holes, should be screened and cracks between boards should be carefully battened. The bottom of the housing must be banked with earth so that there will be no opening between the

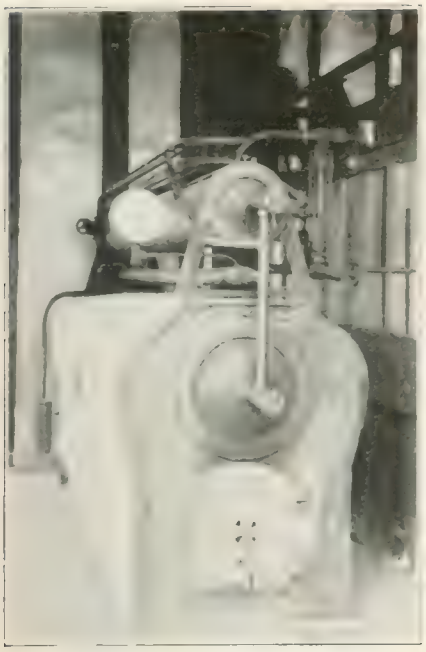


Plate IV. The camp maintains a refrigerating machine for cooling food during the summer months.

bottom sill and the ground. The doors should have spring hinges, coils, or some other arrangement that will insure their closing automatically. As an added precaution, each seat should be provided with a cover arranged to drop automatically over the hole, and the surface of the excreta should be kept well covered with crude oil or lime. The pit[2] should never be less than five feet deep and when it is half filled a new pit should be dug and the building moved over it; the old pit should be first burned out, then filled with earth. Such a system of sewage disposal can in no case be recommended for permanent adoption and can be used with safety only when constant vigilance keeps the buildings fly proof.

In the past it has been the practice at permanent camps and in many cities and towns to convey sewage by a water-carriage system into a cesspool. Because the cesspool was covered up and so far from the buildings that the noisome gases did not become a nuisance, it was supposed that the sewage was being disposed of properly.

Undoubtedly there are places where this system properly disposes of the sewage, but in the author's opinion such places are the exception, as the successful operation of a cesspool depends on septic action. To insure septic action, the surface of the water in the pool should remain at practically a constant height; that is, the water should seep into the soil at the same rate it enters the pool. This, of course, is seldom possible. On wash days, for example, there may be an influx of water that will almost fill the cesspool. When the water recedes, the scum of bacteria and excreta on the surface will stick to the walls of the excavation, and if the cesspool is not properly covered it will, like the open privy, afford a breeding place for flies. When the sewer system is not in use for a time, as may happen if the buildings are vacant, all the water may seep out of the cesspools and the scum of excreta and bacteria left behind may cover the bottom as well as the sides. Repeated occurrences of this kind may so affect the porosity of the soil that the water will cease to percolate through it, with the result that the pool overflows and becomes a positive danger to everyone living in the vicinity. Any type of sewage disposal that does not preclude the possibility of flies coming in contact with the excreta or other waste material is unsatisfactory.

A septic tank is simply a nonleaching (water-tight) cesspool provided with an overflow and is not necessarily, as is generally believed, a complicated and costly structure dependent on careful attention for satisfactory results. Its construction is comparatively simple. The septic tank is well adapted for use in almost any part of the United States and costs only a little more than the ordinary cesspool.

The purpose of the septic tank is to separate and settle from the liquid as much as possible of the solid material in the excreta and to destroy the solid material by bacterial agencies. Part of the material will settle in a short time, part will remain in suspension for a long time, and some is so finely divided that trying to settle it out probably would be impracticable. The theory of operation is that the solid matter is attacked by countless bacteria, which change most of it into compounds that are liquid or gaseous. Some of the solids rise and form a scum over the surface of the liquid, whereas others sink to the bottom of the tank. As this scum excludes the light and air and may be regarded as an aid to septic action, it is desirable that it should remain undisturbed except when the tank has to be cleaned.

The essential points about a septic tank are: (1) That it be watertight; (2) That the compartment receiving the sewage be so arranged that the water from the sewer mains may pass through it without appreciably disturbing the surface. These

Plate V. A garbage incinerator takes care of the kitchen waste.

tanks are of different forms, some more or less elaborate having automatic siphon discharges. However, they can be simply constructed at relatively small cost and still give thoroughly satisfactory results. The writer knows of no tank that, considering first cost of construction, convenience, efficiency, ease of maintenance and the like, gives better satisfaction than that described in U. S. Bureau of Mines Technical Paper 261, entitled "Oil-Camp Sanitation."

Inefficiency Due Largely to Imperfect Sight

The Eye Sight Conservation Council is responsible for the statement that in a careful examination of ten thousand industrial and commercial workers, active in their work and supposedly in good condition, fifty-three per cent showed defective vision uncorrected. It is an absolute fact that many employees are accused of inefficiency and carelessness when it is entirely a matter of imperfect vision.

The motion picture camera is made in imitation of the eye. The better the condition of the lens and the better the illumination of the object, the better the result of the photographers effort. Just so with the more perfect instrument, the eye. It behooves every one to see that his eyes are kept in good condition and free from eyestrain coming from defects which may be corrected by glasses, or the strain due to improper lighting.

Occupational Influences in Tuberculosis Rates

Education of Workmen Important Factor in Combating this Disease

By I. A. GALDSTON, M.D., Secretary Industrial Service, New York Tuberculosis Association, New York City

IN THE *Monthly Bulletin* of the New York Tuberculosis Association for September-October, 1921, there is contained a brief statistical study made by G. J. Drolet, Chief Statistician of the Association. The story of the study, so tersely told, is of greatest importance to all interested in public health and especially to those who view it from the industrial angle. The results of the study prove that tuberculosis in New York City is primarily a man's disease, and that during the last ten years, with but slight variation, the mortality rate from tuberculosis for men has been, and is, twice as high as that for women.

In considering the results of this study two questions present themselves at once; the first is, what are the causes of this higher mortality among men, and secondly, what can be done to remedy this condition. In the attempt to answer the first question, that of the reason for these differences in mortality, one fact from among others presents itself as most salient. That fact is that in New York the percentage of men employed in gainful occupations as compared to that of women similarly employed is approximately 2½ to 1. Out of a total 2,531,637 persons engaged in New York in gainful occupations, 1,838,541 or 72.6 per cent are men and 693,096 or 27.4 per cent are women.

To appreciate fully the significance of this last point, one must view it in the light of our latest knowledge of the etiologic factors of tuberculosis, for here it is seen that great changes have taken place. For the earlier concept of the etiology of tuberculosis which dwelt with an almost blind exclusiveness upon the home environments has been substituted the broader one which, while not abandoning the factor of home environments, has focused attention upon *all* those factors which affect the bodily resistance and vitality of the individual. The modern concept of active tuberculosis is that it is an adult development of an early childhood infection, resulting primarily because of a lowered body-resistance.

J. W. Turner in "A Tuberculosis Background for Advisers and Teachers," says:

Practically all the evidence at hand indicates that adults do not develop tuberculosis as a disease because of contact with tuberculous adults, but rather from a tuberculous infection received years before, most probably in childhood. The tubercle bacilli are walled off, they are hidden away and lost sight of, but at some crisis the tuberculous focus becomes permeable.

The same view is thus presented by the English authority, Cobbett, who states:

Tubercle bacilli are so commonly present in the air we breathe and in the food we consume that opportunities for acquiring infection come to all of us, and indeed most of us do actually become infected at some time or other during our lives. But the disease soon becomes arrested in the majority of people, and leaves only a little scar in the lung, or a calcareous focus in some gland.

Opportunities for infection being so very common, as these facts show them to be, it is manifest that they can count but little in the ultimate result. *The determining cause whether we develop some unimportant lesion or a progressive and fatal disease must therefore depend on some other factor, and that factor can only be the power of resistance possessed by the individual.*

In the last ten years in New York City tuberculosis has been essentially a man's disease, the male mortality being twice as high as that for women. The reason for this is seen when one realizes that the great majority of trades which predispose to consumption are followed almost exclusively by men. Since conditions in industry are often the cause of the development of tuberculosis in the individual, the education formerly brought into the home and the school must now be taken to the workshop and factory, the office, the union meeting, and apprentice school. The economist and sociologist by efforts to shorten hours of work, to increase wages to a living standard, and to lighten the fatigue of hard labor can do much to reduce the mortality.

If this last concept of the cause of the development of active tuberculosis be correct, and it is the concensus of medical opinion that it is so, it behooves us to ask what are the factors current in the daily life of the individual that most seriously threaten and are most competent to undermine his resistance and to sap his vitality. But little mental effort is necessary to realize that the industrial factors play just this rôle. For it may be said with no fear of any warranted contradiction that the hours the individual spends in the office, factory, shop, or mill, are the most strenuous and taxing of the twenty-four included in the day. In the work place the individual is not master of himself but only a conscious element in a complex industrial machine that requires the unconditional cooperation of all its various parts and elements. The machine drives the man, the ledger leads its keeper, and the business appointment drives the executive. Irrespective of the wishes or the demands of the physical being of the factory worker, office worker, or executive, they must each do as the industry demands or clog the work.

This situation is truly presented, and, while from the view point of national health it is a lamentable situation, it is incumbent upon us not to lament over it, but to realize it. And because industry is so very capable of and so liable to undermine individual resistance, and because there are so many more men than women at work in New York City, the causes for the marked difference in the mortality of men and women become quite evident. That this conclusion, as well as the discrepancy in male and female death rates from tuberculosis, holds true for other industrial centers than New York, can be seen from what Cobbett has to say in his study on the "Causes of Tuberculosis":

It can hardly be doubted that this difference depends in the main on differences of occupation, for the great majority of the trades which predispose to consumption, in England at least, as well as in the United States, are followed almost exclusively by men. This view of the case is supported by the fact that the

difference in the comparative liability of the two sexes to die of tuberculosis has increased greatly in modern times, that is to say *pari passu* with the continued growth of our industries.

Thus we can account for the chief causes of the high mortality rate from tuberculosis among men. But the causes being accounted for it now remains to give answer to the more important query as to what can be done to remedy the condition.

At the very outset perhaps it will not be amiss to say that in the opinion of the writer whose experience with workers and workers education has been extensive, relatively little can be done *for* the worker. This catagoric statement is made in order to impress upon the reader the fact that the situation does not demand the services of the philanthropist. It is not philanthropy but education that is required. Nothing needs to be or can be done for the worker beyond teaching him to do things for himself. Education is his primary need. For even though the most modern sanitary equipments be installed in the workplace and though the best equipped dispensaries be placed at his command with experts ready to serve him, nothing will avail if the worker is not first taught to appreciate the need for and the value of all these health guarding elements. What industrial physician has not seen wheel guards converted into receptacles for the workers tobacco and pipe, guard glasses worn in the hip pocket, and wash basins converted into paper baskets.

Even more concretely and to the point is the experience of the Union Health Center. Here is an institution representing approximately $100,000 of the workers money invested in the construction and equipping of a model medical center, and yet despite the fact that it is all the workers' own institution, governed by his representatives in the interest of the Union, the number of men and women that take advantage of the health conservation facilities thus offered to them represents but the merest part of the total. In the face of such facts, what else but an intensive and extensive educational campaign can avail?

In thus stressing education, the writer is well aware that the education of the workers is no panacea. No amount of educating the workers, as such, will shorten the hours of work or increase wages to the living standard, or lighten the burden and fatigue of hard labor. Education as such can only ameliorate conditions under the circumstances given. Those conditions of work, wages, and hours need to be changed, but the consideration of the same falls in the domain of the sociologist and economist rather than in that of the industrial physician. Suffice it in passing to say, however, that the writer well knows that both workers and employers need education.

Education is a vague expression to which we must give clear definition in order that it be properly understood. Though at first it may appear like a difficult task, in truth it proves otherwise. For education as a means of reducing morbidity and mortality is no new use made of learning. It is only the education of the worker in the shop, factory, and office, that is relatively new. For many years, education in the prevention of tuberculosis as well as in the hygiene of the tuberculous patient has been brought into the homes and schools, to the minds of the women at home and the children at school. Now we need to bring it into the factory, shop, office, union meeting, apprentice school, and wherever else the workers can be gathered into groups and made to listen and to learn. No doubt in this last educational effort the methods employed will differ from those formerly used in the home and school campaigns. The field is bigger and more complicated but we have greater facilities. We have the moving picture capable of silent but impressive lessons. We have its static brother the colored projection slide. Great masses of workers can be addressed during lunch periods, or if the employer is sufficiently enlightened, on the time of employers and employees in the forenoon or afternoon.

A scheme but little tried as yet is the circulating miniature exhibit made up of photographs affixed to a board with appropriate short description of the points they illustrate and suitable literature for the workers to take with them and read at their leisure. Such miniature exhibits take up but little space in the factory and can be made to circulate from one shop or factory to the other with excellent results. Evening classes in "health and tuberculosis prevention" in the adult state and union schools offer another very good means of reaching the workers, especially the younger ones whose minds are still plastic and open to impressions. The publication of health articles in trade papers written especially for the particular trade is also an effective educational activity.

All these various means, and what ever others the genius of the industrial physician and health worker is sure to uncover when in close contact with the workers, if practiced long enough are sure to affect deeply the understanding and attitude of the workers and to produce an appreciable fall in the male mortality from tuberculosis. The rest will need to be done by the economist, the sociologist, and by the theoretician as well as by the practicing physician. By working together it may not be long before the Great White Plague is robbed of all its terror and its victims now counted in the millions may be reduced to but a relative few. At first, however, we must reach the worker as we have never reached him before, for as is proclaimed by the motto of the Union Health Center, "In matters of Health as in economics, the salvation of the workers depends upon the workers themselves."

Protect Salt Lake City Water Supply

Installation of the police signal system from which Salt Lake City's water supply is drawn is proving an invaluable safeguard.

The water supply for the city of Salt Lake is from sources far above the city and is distributed by means of gravity; the reservoirs are some distance away from the city. Men have been on duty at all times at the reservoirs, but under the new system three shifts of men safeguard the reservoirs and intakes. It is their duty to keep campers at a safe distance from the streams and guard against the pollution of the water by horses, cattle, and sheep.

A signal system has also been employed for making reports. This system is proving invaluable in guarding against grass and forest fires.

Health Service Lengthens Life Expectancy

The Statistical Bulletin of the Metropolitan Life Insurance Company offers as a convincing instance of the beneficial effect of a well considered campaign of health education figures on the mortality experience of the policyholders in their Industrial Department. The program now embraces more than thirteen million men, women, and children of the wage earning population of the United States. At the end of ten years the death rate has been reduced more than one-fifth. A total of 35,000 fewer deaths occurred in 1920 than if the 1911 rate had prevailed.

The Medical Aspects of Personnel Work*

By ROBERT E. ANDREWS, M.D., Ludlow Manufacturing Associates, Ludlow, Mass,

THE subject of this paper, that of the correlation of the medical and employment departments in industry, was chosen because of the many placement problems which have arisen in the course of the author's work as an industrial physician, and which could be properly solved only after conference and intimate discussion with the employment manager. Such conferences have been invaluable both in giving the examining physician an appreciation of the employment manager's viewpoint, and in giving the employment manager an insight into the medical aspects of the problems considered.

There are many functions in common between the two departments of employment and medicine in which the interests are essentially interlocked.

The Job Requirements

Perhaps the most readily accepted function lies in the placement of a worker where best suited. This presupposes a careful job analysis and entire familiarity by the heads of both departments with the physical and mental requirements of the jobs to be filled. The data in the hands of the employment manager are not sufficient without additional data in regard to the fatigue element and the physical type best fitted after study by a qualified industrial physician. Different concerns have attempted to standardize a rating of incoming employes, and many have accepted the four groups developed by the Conference Board of Physicians in Industry. These are as follows:

(1) This group comprises those physically fit for *any* employment. This group is necessarily small, as few are found able to fill such a requirement.

(2) The next group is composed of those physically fit but below par in development or other conditions. The vast majority of employees come under this heading.

(3) A third group comprises those physically fit only for certain employment when specifically approved for it by the examining physician. Many cases range themselves under this heading.

(4) Then there is the group of those unfit for any employment. Such workers are relatively few, and comprise the rejection cases generally.

Members of the New England Conference of Industrial Physicians have accepted this rating, but with the privilege of modifying it according to local conditions. For instance, in the textile industry employing the author, three main industrial hazards are recognized: Dust, dampness, and extra heavy manual labor. So the classification of an incoming employee's physical rating after examination has been divided into four classes to cover these hazards. (1) The first group comprises those fitted for the jobs for which they are to be hired. (2) The second group cannot be hired on a dusty job. This group comprises those with chronic throat affections, bronchitis, asthma, hay fever or history of old pleurisy or lung trouble. (3) The third group cannot be hired on a damp job because of a history of present or past rheumatism or neuralgic seizures. (4) The fourth group cannot be hired on a weight lifting job because of present or potential hernia, or high blood pressure.

Doubtful cases are discussed thoroughly with the employment manager before deciding to take them on as impaired workers. If given employment, there should be periodic check-up examinations at intervals, and always before transfer to another job. The author believes that a physical rating of new employees by a qualified industrial physician should be made whenever possible, and that the data from this will prove of inestimable value to the employment manager. As was first pointed out by the Conference Board of Physicians in Industry, by means of this rating three sources of danger are eliminated; first, the worker dangerous to himself through fits or fainting around moving machinery; secondly, the worker dangerous to others through contagion; and lastly the worker dangerous to property through mental unbalance.

Fainting spells and mild fits most of us have met with, the difficult cases being those who are unaware of recurring short lapses of consciousness. Further questioning usually brings forth the fact that they have bitten their tongues in their sleep which is one of the occasional effects of *petit mal* or mild epilepsy. The author has had some five or six suspected cases referred by the employment department in the past year alone.

Skin diseases, parasites, and to a less extent, venereal disease are another source of danger to fellow workers, and require considerable judgment and not infrequent consultations in placement.

The out and out mental case, the paranoiac, with his delusions of being followed, spied upon, and threatened, is rather rare. But these cases do present themselves and should receive medical attention and observation in the plant. My last experience with such a man was in the case of a crane operator who claimed somebody was always watching him and talking about him, and had put something into the gears of the machinery. When he reported that he was being followed by the same party, we became suspicious and on examination by two alienists resulted in prompt commitment. The employment manager is, however, interviewed frequently by people who feel they are not getting a square deal at their jobs. These cases are a real problem and occasionally a slight mental aberration comes to light on observing their habits and studying their mental paths of reason. In all of the above classes of cases consultation and cooperation are very necessary functions of both the employment manager and the medical man.

The Woman in Industry

The problem of the pregnant woman, the author realizes, is confined to relatively few industries, but plays a fairly large part in textiles. How large a part it plays with the concern with which the author is associated may be gained by the statement that more than 10 per cent of our "help left" during the year are obstetrical cases. When 10 per cent of your exits are from one cause, time can be well spent in investigating such cause, as contributing to labor turnover. The Commonwealth of Massachusetts limits the time these cases may work and the period of convalescence before re-employment, but the industrial physician is the employment manager's right hand in determining whether such cases are harming themselves and slowing production by being kept too long on the job, and also whether, as efficient workers, they are physically ready to return to the work, on appearing to seek again their old job.

One of our New England Textile

*Read before the Springfield Employment Managers' Association, Springfield, Mass., February 7, 1922.

Industries is now completing an analysis and study of the pregnancy factor in their labor turnover. Last year they had 126 such cases, twenty of them illegitimate. The most frequent age was between twenty-five and thirty years, and the pregnancy was most frequent in those having worked four years in the mills. Over 50 per cent of these are without other dependent children. Women constitute about 60 per cent of the total employes in this plant, and while the work is largely unskilled, yet experienced help is usually in demand. The employment records of these women show rather frequent exits and hirings. The study of the reasons for this frequent turnover is not yet complete but analysis of the pregnancy cases by nationality shows that in a nearly even given number of cases of Portuguese and Polish women, the Portuguese women were hired on an average of three times in three years, while the Polish women averaged four times in eight years. In other words, in this particular textile plant the Polish women who became pregnant had worked proportionately twice as many years on the same number of hirings. While the number of these reported cases is too small for definite conclusions, yet it would seem from the above that a woman within the age limit of twenty-five to thirty years is more liable to increase the labor turnover through pregnancy, and that, other conditions being the same, a Portuguese woman is twice as liable as a Polish woman to do so.

The Personal Element

A well recognized function of both medical and employment departments is that of bettering industrial relations. Almost daily, conferences are held in individual cases. Recently there was the case of a woman whose work had been reported to the Employment Department as deteriorating in quality. Investigation showed her to be doing the house work at home with the care of five children, and her husband unable to find work. Medical examination showed an anemic, debilitated, underfed woman, fatigued at the start of the day, and mentally discouraged. As a result of cooperative effort, her husband was given work, that she might remain at home to convalescence and follow the advice and treatment of the plant physician, whose personal interest, knowledge of her disadvantages and opportunity of advising and helping her, will go a long way in establishing a close human relationship with the Employment Department. The true story is often first learned in the consulting room of the physician, and has not infrequently proved vital in the solution of the problem.

Harmful working conditions often first come to the notice of the Employment Department through physical complaints of workers consulting the physician. There are numerous dust hazards of varying degree in the textile industry. While generally organic in character, it is often an unrecognized source of respiratory irritation. In the textile industry employing the author, five cases were found to have been discharged from the job during the past year because of irregularity in attendance at their work. On checking up with the medical records, it was found that in each specific case the worker was subject to asthmatic attacks or chronic bronchitis brought on by dust irritation. The Employment Department was able to correct the manifestly unfair treatment of dropping these men from the payroll, by placing them at other work. The risks of the job were called to the management's attention and were corrected by installing dust removal apparatus.

Another problem which many employment managers have been called upon to solve is the consideration of the industrial cripple and the finding of work which he is fitted to do. The latest figures published by the Massachussets Industrial Accident Board are for 1919. They show a sum of 78,000 lost time accidents for that year. Among these were 1,319 cases of partial disability lasting more than one year, and a total of 1,639 cases of partial disability with the loss of a member,—all of this in one year in Massachusetts alone. The figures for 1921, when published, should be proportionately greater. Yet to the writer's certain knowledge in his past two and one-half years of examining prospective employes, rejections for physical disability have run below one-half of one per cent. In other words, while pre-existing hernias average between 6 and 8 per cent of the men hired, heart complications about 2 per cent, and history of previous lung complications about 5 per cent, yet the Employment Department has been enabled to place the doubtful risks in occupations where they have become safely absorbed in the industry. This work was materially helped by conferences with the foremen, who reported as the result of a survey of their respective departments, what jobs in their judgment might be considered available for temporary or permanently disabled workers.

The ability to keep at work an injured employee even at a minor temporary job means a real saving to him in dollars and cents in wages which he would otherwise have lost in waiting for compensation, means a noticeable reduction in absenteeism, and lowers the experience rating for lost time accidents, which in turn is reflected as a real saving in dollars and cents to the management in reduction of the insurance premium.

The Child Laborer

The problem of the minor in employment calls for close cooperation with the plant physician. Many physicians in industry have little confidence in the signed statement or certificate of health of an outside physician on the yellow "promise of employment" card as to the minor's physical ability to do the work called for. This card is frequently filled out after a meager inspection of the youth, the physician perhaps feeling that, because signing the card is a gratuity, his duty has been discharged by the signature and inspection alone. But there is an aspect of the case in these fourteen to sixteen-year children which is becoming more and more recognized. They constitute the future prospects of our industrial help and with this in view the physical examination by the industrial physician before they enter industry has, as a dominant motive, the conservation of their health, growth, and vitality. An employment manager relies very strongly for the job placement of these cases on the report of the plant physical examination. Backward cases are at this time much easier recognized and remedied. Not infrequently the employment manager is faced by the problem of economic necessity of hiring a backward youth where the family is large. Here consultation is essential in the selection of suitable work.

A similar function of consultation is implied in the treatment of requests for transfer because of fancied grievances about the job. Here the element of fake or malingering appears. We have the lame arm, the sore shoulder, stiff back or splitting headache—anything as an excuse to change to another department, although there may be no real basis for the change. Investigation of these cases by the employment manager demands a report of the real physical condition of the asserted injury before he can justly deal with transfer.

The taking into employment of women recently widowed and with dependents is a medical risk, for they have presupposedly passed through a recent severe nervous strain. In these cases the need of quiet and the element of an increased fatigue reaction demand work where the nervous strain and noise are lessened, and the worker needs an occasional checking up of her physical progress through the Medical Department.

Another difficulty which frequently calls for consideration is the finding of a temporary job for those well advanced in convalescence from illness or operation and able to do rather light work but still unable to return to a strenuous job. They badly need the money in the weekly pay envelope. Perhaps this problem of temporary placement is one of the most frequent which arises, partly because the idea has to be sold to the foreman. For the foreman's first impulse is to tell the convalescent to 'stay out till able to do what he or she had been accustomed to previously, and it is a self evident fact that danger lurks in the placing of such a case without medical advice and consultation.

Again, we experience the problem of a psychological condition arising from a monotonous job continued for years. A case in point is that of Mrs. D., a weaver, who became an extremely nervous woman, through a long period of seventeen years' work on one monotonous job. After consideration of her case it was decided to substitute replacement at other work, and she made a rapid and uninterrupted recovery.

Fears or phobias occasionally arise. This happened recently to one of our doffers who refused promotion through a fear of moving machinery. This problem was solved by suggestion of varied work which built up a gradual confidence, overcame her fears, and in the end the girl accepted promotion.

Substandard Risks

A pre-determination of poor accident risks, mental or physical, is absolutely essential to the proper placing of the worker. Because, in the industry employing the writer, organized service work is not yet two years old, numerous cases crop out among those hired in the old days. These present problems similar to those of the new help. A few examples may prove of interest.

Shortly after the Medical Department was established some two and a half years ago, a middle aged member of the outside labor gang appeared at the clinic complaining of a lame back caused as he claimed by lifting a four-hundred pound bale. Examination disclosed in addition a large louble inguinal hernia or rupture which had persisted for several years without the support of a truss. Because there had been no previous physical examination of this man, he had for months been subjecting himself to the dangers of permanent diability, and nobody in the Employment Department had known him to be a potential accident risk. On discovering his physical condition, he was immediately transferred to a safer job.

A short time ago an applicant was offered employment as elevator man. Physical examination showed him totally blind in the left eye although there was no apparent visible disability. Therefore, because his position in running the elevator would expose his left side to injury from the loading and unloading of heavy boxes, he was considered an accident hazard on that job, and work where he would not be subjected to bodily injury was substituted.

Another grave accident hazard was that of a man fifty-eight years of age who was sent to the employment manager by the foreman for transfer because he had complained of dizziness on the particular job of cleaning about the high speed roving frames. Necessarily he was then referred to the Medical Department for a report of his condition. Examination showed a case of high blood pressure, hardening of the arteries, and that rare condition, heart block with a pulse of twenty-eight to the minute, a history of five fainting spells in the past week and constant danger of apoplexy. It did not take many minutes to transfer this man to relative safety. Not long afterward this man dropped dead at his breakfast table.

Then there was a case of a head doffer who was continually tripping up or getting bumped into. Finally because she became a lost time accident case, and repeated this the day she returned to work, her foreman sent her to the Medical Department. The woman was found to have no sight in her right eye and very limited vision with the left. She did her best to fake a good eye examination but was readily recognized as a bad accident hazard and placed at a table cleaning the yarn off of old bobbins. This happened over a year ago, and although in the previous year she had been treated not less than eight times for injuries, since then she has been totally free from them.

These examples suffice to show the very close relationship which exists between the proper functions of employment and medical departments. Both departments are irrevocably bound up in service, that great work of bettering industrial relations. The employment manager today not only works to produce a better man for the job, but he is going a step farther, and works to produce a better job for the man. In the process of humanizing industry there is no finer introduction to a workman's confidence than a sincere interest in his general well being and progress as manifested today by the joint solution of his problems by the industrial physician and employment manager.

Physical Education Meeting at Chicago

That the physical education program has become international in scope was pointed out by John J. Tigert, United States Commissioner of Education, before the Fifth National Physical Education Conference held at the Great Northern Hotel, Chicago, February 28. From a questionnaire sent out by the United States Bureau of Education relative to physical education, 16 of the 37 foreign countries who answered have physical education in the schools. The playground, a typically American institution, is also being established in European countries.

The need for physical education by a city and industrial people was discussed by Will C. Wood, State Superintendent of Schools of California. Physical education must not only conserve vitality but it must increase physical vigor, stated Mr. Wood. It must build up the nervous system as well as give it relaxation; it must train for hygienic living and good sportsmanship; it must provide for the increased problem of leisure.

The Conference was held under the auspices of the Council of State Superintendence of the National Education Association. Dr. W. S. Small of the United States Bureau of Education was chairman.

According to statistics based on amounts disbursed for deaths during 1921 by the Metropolitan Life Insurance Company, tuberculosis ranks as the greatest cause of death, 14.3 per cent of the deaths being from that cause. Mortality from other diseases ranks in percentages as follows: Heart disease, 12.2; cancer, 9.4; chronic nephritis (Bright's Disease), 7.4; pneumonia, 7.0; cerebral hemorrhage apoplexy, 6.5.

Cooperative Medical Aid for Injured Workmen

A Plan Combining the Free Choice of Physician and the Contract System

By HOMER D. DUDLEY, M.D., F.A.C.S., Industrial Service Bureau, Seattle, Wash.

IS IT possible to devise a cooperative plan for giving the best medical and surgical service to injured workmen under state supervision which will be mutually satisfactory to physician and to patient? Can the injured workman have the free choice of physician under a contract plan to furnish medical and surgical aid, and can such practice be distributed so justly that the members of a large organization of doctors will be content? These questions are answered affirmatively by the Industrial Service Bureau of the King County Medical Society, an organization comprised of the leading physicians in the most populous county in the state of Washington.

The Industrial Service Bureau is unique in several particulars. With more than four years' experience, it is able to show that physicians in so numerous a group as a large county medical society can bargain collectively and can render a service unsurpassed elsewhere in the state or in the entire country, to injured workmen who are beneficiaries of the industrial insurance plan. The plan under which the Bureau operates is a rare thing in contracts—it is entirely satisfactory to every interested agency. The Industrial Service Bureau of the King County Medical Society probably has no counterpart in the country, and the story of how a county society of doctors makes contracts to render medical and surgical service, discharges its obligations to injured workmen satisfactorily, and apportions the work with even handed justice is worthy of consideration.

Washington was one of the first states to adopt a Workmen's Compensation Act. In 1911 when the law was enacted, it was not foreseen that the compensation provided frequently would not pay for necessary dressings, drugs, hospital care, and for the services of the attending surgeon. After a few years of trial, it was seen that the compensation act failed to provide the relief which injured workmen had the right to expect. The dissatisfaction over the operation of the law was not confined entirely to the workers; the physicians who attended them when accidents occurred found difficulty in many cases in collecting their bills. No attachment proceedings or garnishments against this fund were permissible under the law, and it frequently happened that the injured workman, who had been reduced to straightened circumstances by reason of his unemployment, received his small compensation from the state and left the attending physician to look in vain for his pay.

The Industrial Service Bureau of the King County (Washington) Medical Society probably has no counterpart in the country. The accompanying article is the story of how a county society of doctors makes contracts to render medical and surgical service, discharges its obligations to injured workmen satisfactorily, and apportions the work even handedly.

The bureau was organized to coordinate two plans devised for rendering relief to injured workmen under the Medical Aid Act, one plan permitting industrial plants to enter into contract with individual physicians to furnish medical service; the other plan giving the injured employee the free choice of physician.

The original act was defective in another particular. While it relieved the employer from liability of damage suits, the flimsiest pretext was considered sufficient upon which to base a suit for damages for alleged malpractice against the doctor. The physician was practically the only person left who could be sued, and for several years after the enactment of the compensation act, malpractice suits were so numerous that all commercial liability insurance companies withdrew from the state. It was not unusual for physicians to refuse cases which came under the compensation act, owing to the rather general tendency to sue under the least possible provocation.

It should be mentioned, in passing, that the withdrawal of the liability insurance companies from the state reacted beneficially by making it necessary for the doctors to provide their own insurance. This they did on a cooperative plan. It has been found possible, for a nominal fee of ten dollars a year, to provide a defense fund which has given more satisfactory protection and now has a surplus of nearly $12,000.00 in its treasury.

The deficiencies in the Workmen's Compensation Act finally impressed the state legislature and remedial legislation was passed in 1917. This supplemental law was known as the Medical Aid Act. It was designed to give relief to employees injured in the industries by furnishing complete surgical service and hospital care in addition to partial remuneration for loss of time. The administration of the act was placed in the hands of a board composed of one representative of labor, one representative of the employers, and a doctor of medicine. This board was empowered to make rules and regulations for carrying out the provisions of the act which had the effect of statute law. Its administration was generally satisfactory to the employees and to the industrial surgeons.

Under the original compensation act, the fund was derived wholly from the industries and taxed on a basis of the number of employees in each plant. The Medical Aid Fund, however, was obtained from employers and employees, each group contributing one half. The assessments were classified as to the hazards of each industry and ranged from one to three cents a day for each employee, according to his classification. Ten per cent of the total amount derived was devoted to administration expenses, while the remaining 90 per cent went to a fund to provide for the care of the injured workmen.

The Medical Aid Board, which has been superseded under the provisions of the new civil code by a supervisor of industrial insurance, devised two plans for rendering relief to injured workmen. One plan permitted industrial plants to enter into contract with individual physicians or associations to furnish medical service to in-

jured employees. The consent of a majority of the workmen was required to make such a contract valid. The other plan gave the injured employee the free choice of physician who was paid according to an established schedule of fees, the state retaining full supervision over the treatment and hospitalization of the beneficiary.

Combination Plan Problems

In meeting the changed conditions, a committee of physicians in King County made a survey of the industries. It was found that under the original act approximately 95 per cent of the medical contracts were held by about 5 per cent of the membership of the county medical society. So long as it was optional with the employee whether he should pay into hospital benefit funds or remain free to choose his own physician, there was little concern over these contracts. However, since the Medical Aid Act compelled every employee in the hazardous industries to contribute to the medical aid fund, it became apparent that some fairer plan for distributing this practice must be devised. The principle that the humblest patient was entitled to the best possible medical and surgical attention of his own choosing was considered fundamental. The provision of the law which gave the patient the right to choose his own physician was so excellent that it was imperative that it be retained. The problem, then, which confronted the King County Medical Society was to devise a method which embraced both the contract system and the free choice of physician plan. The solution was found in the organization of the Industrial Service Bureau, an adjunct of the medical society but having behind it all the resources of the parent association. This organization was accomplished in June 1917 and the Bureau has functioned ever since.

It was not an easy matter to formulate a plan which would meet all objections. Since the Committee appointed by the Medical Society was doing pioneer work, it had to take each step cautiously and with due regard to the rights and privileges of 428 doctors who were members of the organization. The list of physicians was so large that it was possible to give injured workmen wide range of choice, but it was necessary to prepare a form of contract which would bind the Society and outline a plan under which the industrial practice could be equitably apportioned. As a matter of fact, it required several months of hard work to find a solution to the problem. When the completed plan was proposed, the ability of the society to discharge its obligations and its guarantees were so ample that the state authorities, many employers, and their employees received it with enthusiasm.

The entire resources of the Medical Society were made available to the workmen injured in the industries. The most skillful industrial surgeons and the highly trained specialists in all branches of medicine and surgery were on call when desired. The best hospitals, the most competent nurses, and the well equipped technical laboratories were available for the treatment of their injuries. It was foreseen that not all the members of the society would seek this class of practice. It was to be expected that doctors who had arrived at that prosperous state when they could refuse calls and meet their patients only by appointment or who excluded emergency surgery in their practice would prefer not to accept accident cases.

Calls Are Apportioned

Actually only about one-half the membership of the society registered their names as willing to take industrial cases but in practice no member refuses a case where his services have been specially sought. Usually the calls are apportioned among those registered, but it is not unusual to have requests for a physician not on the list. In a case of this sort, the physician serves without question. In a majority of instances, a preference is indicated when a physician is called; when no preference is expressed, selection is made at the central office from a rotating list.

The unquestioned responsibility of the society, an incorporated body, makes it possible to give a smaller bond than that ordinarily required of an individual or group. The rule promulgated by the Medical Aid Division requires a bond of $10,000.00 for the first contract and an additional bond of $250.00 for each subsequent undertaking. Had this rule been strictly adhered to in the case of the Industrial Service Bureau, the total amount of the bonds would be in excess of $85,000.00. In view of the quality of service rendered and the fact that every member of the county society stood behind the contracts, it was deemed sufficient to require a bond of only $20,000.00. As a matter of practice, the bureau has uniformly given more service than is actually required under the agreement.

Following is a brief summary of the service rendered: (1) A twenty-four hour service through a telephone exchange with five trunk lines employing three operators; (2) a choice of any physician from the bureau's list of doctors classified as to their specialties; (3) in the event that the doctor chosen is not immediately available, an emergency service is furnished and the physician selected by the injured workman subsequently takes charge of the case; if no preference is expressed, the bureau furnishes a doctor from a rotating list of physicians who have agreed to be on call for that day; (4) a fully equipped first aid station with a graduate nurse in charge in each plant or neighboring group of plants employing one thousand or more workmen; (5) consultation is furnished in all serious cases; consultation when requested, and consultation covering the various specialties whenever indicated; (6) first aid cabinets with free lectures weekly to designated first aid men in the various industrial plants; (7) free ambulance and hospital care when needed; (8) private nurses and private hospital rooms in serious cases when advised by the attending physician.

It is worthy of note that the first aid kit supplied by the Industrial Service Bureau was the first voluntarily furnished in the state of Washington. Since its appearance, plants are now required by law to supply emergency outfits. The contracts call only for ward beds in hospitals, but in serious cases, upon request of the attending physician, the bureau furnishes private rooms and special nurses during the critical period of a case.

Benefits to Physicians

It is beyond question that in the operation of the bureau every employee has the benefits of both the free choice of physician plan and the contract plan, plus the unsolicited services of the consultants and specialists, the daily reports of condition and progress of the patient available both to the bureau and the employer, the supervision of the first aid men, and a prompt and effective ambulance and emergency surgical service.

The benefits of the bureau to the individual physician may be summarized as follows: (1) Every doctor enjoys all the patronage from any industrial plant or individual employee he would have had were there no Medical Aid Act; (2) the doctor is relieved of the tedium and worry

of bookkeeping, the handling of funds, operation expenses, the settlement of accounts, and the time consuming work of settling disputes; (3) surgeons are relieved of the liability of catastrophies which might prove financially disastrous if they held individual contracts; (4) all accounts are settled in full every thirty days according to the schedule of fees established by the state; all are paid in full for every service rendered; (5) every doctor registered in the bureau has an equal share in the patronage which might come to him by chance. The continuous central telephone service and the rotating list make it possible to be solicited for a service which might not otherwise be requested; (6) any plant under contract with the bureau may, if it wishes, specify the same doctor in every accident case if the choice is agreeable to the injured workman. Many physicians turned over their individual contracts to the bureau; (7) a committee of doctors audits all bills on the first of each month and checks are forwarded on or before the tenth.

System of Blanks Devised

The Industrial Service Bureau employs five persons; three telephone operators, a detail office man, and a manager. The manager is a layman under contract and bond whose remuneration is based upon a sliding percentage of the profits of the bureau. The doctors in any instance cannot lose. If, after all expenses are paid, a profit remains, a percentage is paid to the manager and the remainder goes into the treasury of the county medical society.

The system of bookkeeping, office blanks, and registration of calls was devised after much experience. It is now so complete that it appears to meet every requirement. Among other things, it is designed to make a permanent record of each call, the name of the plant calling and the hour, the physician designated or the physician furnished, the name of the patient, the nature of the injury, the destination of the patient, the time of arrival at the hospital, the time of the arrival of the physician, and the number of physicians called preceding the acceptance of the case. A simple ledger and card system gives the service rendered by each physician, the names of the patients, and the fees paid. Also there is a separate record for each industrial plant which shows the amount of money paid, the cost of carrying the contract, the number of accidents, and the names of the injured workmen. From these records, it is possible for every interested party to obtain any desired information.

The state law provides that if any individual plant can show a reduction in the number of accidents through the installation of safety devices or through the exercise of commendable caution, it may have a reduction in the assessments against its particular classification. The records of the bureau are designed to supply the industrial plants with facts and figures to make this showing. The information is furnished gratuitously.

Some of the facts shown by the bureau records are extremely interesting. After nearly five years of experience, it has been found that 50 per cent of the accidents in industrial plants occur on Monday or on the day following a holiday. Twenty-five per cent of the accidents occur shortly before quitting time. From these facts, it is deduced that from 60 to 75 per cent of accidents are due to carelessness; that after a holiday the workman is slow to get back into routine of duty and that the haste to quit work presumably results in throwing aside the usual precautions against accident.

The satisfactory operation of the bureau has assured its permanency. Upon several occasions state officers have expressed the conviction that in view of the class of service given and the smooth running qualities of the bureau, it is almost ideal. Despite the fact that 428 doctors are under contract no more disturbance is caused the state department of labor and industry than if the contracts were held by individuals. It is a demonstration of the fact and the realization of a belief that when proper system is established a group can operate as smoothly with greater benefits and efficiency than an individual. The plan imposes no greater cost on the plants and employees than individual contracts or the free choice of physician system. As a matter of fact, it costs a little less since the bureau furnishes ambulances and first aid equipment. Also it saves the time of the plant in calling doctors and the service is generally more prompt.

Among the indirect benefits of the bureau to the medical profession in Seattle and King County may be counted the physician's exchange which is operated in the same offices and by the same force. With a list of physicians constantly on call, any person in any part of the city or county needing the services of a doctor can be supplied by the bureau. There is also a collection bureau housed in the same offices under the same management which is able to take a serious burden from the shoulders of the members of the society. It should be mentioned that the medical society contracts to care only for those industrial accident cases which come within the provisions of the Medical Aid Act.

The advocates of State Medicine might find in this plan a substantiation of their theories provided the same cooperation of all interested parties could be obtained. The difficulties in the way of securing this cooperation probably are in the light of present medical practice almost insurmountable. That, however, is a question which may well be left to the future for determination.

Seating of Negro Women in Industry

One of the most injurious conditions surrounding thousands of Negro women in industry, the arrangement of seating them when at work, was revealed by the investigation made recently by Miss Emma L. Shields of the Woman's Bureau of the United States Department of Labor. States the report:

It has been physiologically proved that continuous standing, or sitting on improperly adjusted chairs, is particularly injurious to the health of women, and that one of the best methods of relieving their fatigue and strain is to provide adjustable seats for use while at work. The managers of the plants included in this survey, however, seemed generally to have ignored this very important matter, as seen in the fact that 128 establishments, employing 10,115 Negro women (86 per cent of all) were found to have either makeshift seats or none at all. These makeshift seats usually were stools or wooden boxes with no back supports. Occasionally the women had tried to relieve this latter situation themselves by nailing a straight board to a box. Even where better seating was provided there was apparently little adjustment possible between the height of the work table and the chairs. A strained posture consequently was unavoidable.

Continuous standing with no facility for sitting was quite common. Many managers were emphatic in their avowal that certain of the processes on which Negro women worked could not be performed while sitting, yet in other establishments women were comfortably seated while performing these same operations. Ten managers said the women would go to sleep if they provided them with seats, but there was no evidence that this happened in the places where seats were provided. The responses of employers to suggestions about such conditions showed clearly that many were eager to remedy them.

Massachusetts Lighting Code

SUGGESTIONS for lighting industrial establishments are presented in a tentative code published by the Department of Labor and Industries. This code was prepared by a committee appointed by the Department to submit rules and regulations. Its membership includes lighting experts, industrial engineers, ophthamologists and representatives of employers and of labor, made up as follows:

Dr. Louis Bell, chairman, Federal Committee on Lighting, Boston; Dr. Walter B. Lancaster, ophthalmologist, Harvard Medical School and Massachusetts Charitable Eye and Ear Infirmary, Boston; Dr. Harry Linenthal, Harvard Medical School, Boston; Dr. Frederick H. Verhoeff, ophthalmologist, Harvard Medical School and Massachusetts Charitable Eye and Ear Infirmary, Boston; Dr. Wade Wright, Division of Industrial Hygiene, Harvard Medical School and Director of Industrial Clinic, Massachusetts General Hospital, Boston; S. E. Whiting, Liberty Mutual Insurance Company, Boston; Edward M. Coffin, staff engineer, Associated Industries of Massachusetts, Boston; Charles F. Horan, director of safety, Hood Rubber Company, Watertown; John Newington, expert on lighting for New Bedford Cotton Manufacturers' Association, New Bedford; Harry Jennings, business representative, Boston Central Labor Union, Boston; and Leonard W. E. Kimball, Electrical Workers' Union, Local No. 103, Boston.

The presentation of the code in tentative form is to afford opportunity for employers to try out the recommendations before a mandatory code is adopted; and to enable the Department to secure additional information as to the lighting intensities required for specific industrial processes.

There is no obligation upon any employer to adopt these requirements at the present time. The Department recommends, however, that so far as possible employers test them in their establishments to ascertain to what extent they are now meeting the provisions.

The code presented here differs but little in its main provisions from the code recently approved by the American Engineering Standards Committee. A public hearing for the purpose of adopting a lighting code will be held at the State House on May 16, 1922. After the hearing the department will determine, from the information obtained through the suggestions submitted and through its own investigations, what form of code it is advisable to adopt.

The code as tentatively arranged follows:

Rules and Requirements

Rule 1, General Requirement.—Working or traversed space in buildings or grounds shall be supplied, during the time of use, with artificial light in accordance with the following rules, when natural light is less than twice the mandatory intensities specified in Rule 2.

Rule 2, Intensity Required—The minimum illuminations to be provided and maintained are given in the following table:

	Foot candles at the work Minimum required
(a) Roadways and yard thoroughfares	0.02
(b) Storage spaces	0.25
(c) Stairways, passageways, aisles, toilets and washrooms, handling of rough materials	0.50
(d) Rough manufacturing, such as rough machining, rough assembling, coarse textile operations, rough bench work	1.00
(e) Rough manufacturing, involving closer discrimination of detail	2.00
(f) Fine manufacturing, such as fine lathe work, pattern and tool making, fine textile operations, office work, such as accounting, typewriting	3.00
(g) Special cases of fine work, such as watch making, engraving, drafting; close work on dark colored textiles	5.00
(h) Extreme cases of fine work requiring unusual illumination, such as fine sewing on dark textiles, or furs. Needle making	7.00

Rule 3, Shading of Lamps in Working Spaces.—Suitable shading shall be furnished as follows:

Lamps shall be suitably shaded to minimize glare.

(1) All lamps in working spaces and placed more than 7 feet and less than 20 feet above the floor shall be so shaded that direct light from them shall be cut off down to an angle of at least 15 degrees below the horizontal through the lower end of the filament, except that lamps having an apparent surface brilliancy not anywhere exceeding an intensity equivalent to 15 c.p. per square inch and 10 feet or more above the floor, and lamps neither exceeding this surface brilliancy nor 50 mean spherical candle power and at least 7 feet above the floor need not be so shaded.

(2) Lamps in working spaces less than 7 feet above the floor shall be regarded as for local lighting and shall be so shaded that direct light from them shall be intercepted down to an angle of at least 30 degrees below the horizontal, and where the work illuminated by them is such as to produce brilliant reflections shall in addition be screened by diffusing surfaces, except for lamps below the workers' eyes and so placed as not to shine therein.

Rule 4, Distribution of Light on Work.—Lamps shall be installed in regard to height, spacing, reflectors or other accessories as to secure a good distribution of light on the work, avoiding objectionable shadows and sharp contrasts of intensity.

Rule 5, Entrance and Exit Lighting.—Employers shall properly light passageways, stairways, and exits, in so far as their premises are concerned, which means buildings, floors or rooms controlled by the employer, including entrances thereto, but excluding hallways, passageways, and stairways giving access to other floors or spaces on the same floor, and used in common by the tenants of the building, which shall be lighted by the party or parties in control of the building, in accordance with the following provisions.

Under the provisions of the statute an employer who violates any reasonable rule, regulation, order or requirement made by the Department of Labor and Industries is subject to a fine of not more than one hundred dollars. (Section 180, Chapter 149 of the General Laws.)

Lights shall be provided in all stairways and exits of factories and in the passageways appurtenant thereto, independent of the regular lighting of the working space. Such lights shall be served from a source not subject to failure because of the failure of the room lighting, and preferably from an independent connection extending back to the main service entrance for the building. In case of unusual danger which may exist on account of type of building, nature of work, crowded conditions, or lack of suitable exit space, the Commissioner of Labor and Industries may require such lighting to be extended within the working space; and independent service to be ensured by connection to a separate source of supply without or within the building.

Rule 6, Switches and Controls.—Switches and controls shall be so placed that at least pilot or night lights, which may form part of the entrance and exit lighting, may be lighted, if not kept regularly burning, from main point of entrance for employes. Such controls shall be plainly labelled.

Rule 7, Maintenance.—All lighting equipment shall be cleaned and kept in order by the employer, so that the intensities of illumination shall never fall below those specified in Rule 2, unless from causes beyond their control, and that the provisions of Rules 3 and 4 shall be maintained.

Rule 8, Natural Lighting.—Shades, preferably of translucent material or diffusive glass, or awnings shall be used to minimize glare wherever the location of the work is such that the worker must face large window areas through which excessively bright light may at times enter the building.

Rule 9, Classification.—Assignment of industrial operations to grades (a) to (h) of Rule 2, and requirements under Rules 3 and 4, shall be determined by the inspectors, subject to review by the department.

The following additional comment is necessary on Rules 2, 3, 8 and 9:

Rule 2.—The foot-candle,* the common unit of illumination, is the light-

ing effect produced upon an object by a standard candle at a distance of 1 foot; at 2 feet, the effect would not be one-half foot candle, but one-fourth foot candle, etc. A lamp which would give off 16 candle power uniformity in all directions would produce a uniform illumination of one-foot candle at a distance of four feet in any direction.

To reach at all times the mandatory values of the column headed "Minimum Required" the initial illumination when the equipment is installed should exceed these values by at least 25 per cent.

Certain operations—for example, photographic processes—are carried out in darkness, but spaces so used must be provided with available lighting grade (c) for use in emergencies.

It will generally be found that the various operations required in a given industry, for example, textile manufacturing, shoe making, etc., require very different degrees of illumination according as they are for rough work requiring little discrimination of detail, or fine, demanding the best conditions for normal vision. For instance, the coarser operations in textile working would generally fall under class (d); the finer ones requiring closer vision either on account of fineness of material or color would be found in classes (e) and (f); and extreme cases of manufacture and inspection of dark fabrics might even run into (g). The same sort of variation over a similar range would be found in other industries. On the other hand, there are classes of rough handling of materials, scarcely to be classed as manufacturing in the ordinary sense, which may fall to class (c), while a comparatively few manufacturing operations in which there must be the closest of visual attention under difficult circumstances would be placed in (h).

Rule 3.—Shading of lamps may be either by opaque shades or any shades of which the surface brilliancy does not exceed 15 c.p. per square inch. In localized lighting, screening by diffusing surfaces may be done either by a directly interposed diffusing screen or by reflectors having a diffusing surface combined with bulb frosted or enamelled lamps.

Glare, either from lamps or from unduly bright reflecting surfaces, produces eye strain and increases accident hazard, hence should be rigorously avoided.

Rule 8.—To minimize eye strain, diffusive or refractive window glass should be used for the purpose of improving daylight conditions.

Rule 9.—These rules may be temporarily modified in whole or in part by the State Department of Labor and Industries with respect to existing installations only, on showing of full and adequate reason for such temporary exception, at a hearing where all interested parties are represented.

*Measurements of illumination are to be made on a horizontal plane, at the work, in (a) at the ground level, with a properly standardized portable photometer. When the work is in a vertical plane, measurement of the standard intensities should be in this plane.

Recent Compensation Decisions

THE Supreme Court of Illinois, October 22, 1921, held that, where an employee while engaged in the performance of the duties of his employment fell into an ash pit and was so burned that death resulted, the same was not from epilepsy or pre-existing disease but from burns received from falling into the pit, and that the case was within the Workmen's Compensation Act.

The facts of the case are stated in the opinion of the court:

Joseph Madison was employed by the Rockford Hotel Company on and prior to September 5, 1919. On that day while in the discharge of his duties he fell into an ash pit where hot coals and cinders were thrown when removed by him from the furnace. He was seen by the engineer a few minutes before he was found in the ash pit in the act of raising the cover from the pit for the purpose of dropping into it ashes and cinders from the furnaces. The witness left the room for five or ten minutes and when he returned found Madison lying on his back in the pit on the hot cinders. He was unconscious, and before witness could procure help and remove him he was badly burned. After Madison was removed from the pit he regained consciousness and was taken to a hospital where he remained several days. He was then removed to his home where he died December 15, 1919.

The doctor who held a post mortem described the conditions he found and expressed it as his opinion that death was caused by the burns.

The widow filed claim for compensation, which was allowed. Liability was denied under the Workmen's Compensation Act on the ground that Madison's injury did not arise out of his employment but was caused by Madison being seized with an epileptic fit; that he was subject to such fits of which his employer had no knowledge; that the fit was the direct and only cause of his injury, and the accident did not arise out of the employment. It is generally held by the English Courts and the courts of this country that, where the death of an employe results from a prior existing disease, like heart trouble or other impaired physical condition, while the workman was doing his ordinary work in the ordinary way, and there was no sudden, unusual or violent strain it will not be considered an accidental death arising out of the employment within the meaning of the Workmen's Compensation Act. . . .

It is contended by defendant in error that it is not as probable that Madison's fall into the pit was the result of his being overcome by gases or fumes or other causes while removing the hot ashes and cinders from the furnaces as that the fall was caused by an epileptic fit. . . . The fact that we cannot overlook or ignore is that Madison, by reason of his falling into the pit while engaged in performing the duties of his employment, was so severely injured that he died from the injuries. He did not die from epilepsy or a pre-existing disease but from the burns he received from falling into the pit.—*Rockford Hotel Co. v. Industrial Commission, 132, N. E. 759.*

THE Court of Civil Appeals of Texas, November 10, 1921, defined the term "hospital services" within the meaning of the Workmen's Compensation Act. The appeal was brought to cancel an award for hospital services rendered by the father to his son. The case in full will not be stated, the question being whether the character of the services rendered are hospital services in the contemplation of the Workmen's Compensation Act.

It requires no argument to show that a private residence, technically speaking, is not a hospital. The statute provides for hospital services. The issue is presented as to what is included in hospital services. Appellant insists that "hospital services" embraces only treatment received in a hospital and does not include "hospital care, meals, fuel, light, and other necessaries," for which the charge of $1.00 per day is made. We do not concur in appellant's contention. . . . The statute does not specify the services to be rendered. . . . and the evidence offered does not show what services are ordinarily furnished by hospitals or other institutions. We can, however, imagine the inconvenience and utter lack of what would be expected of a hospital service that did not furnish some care, meals, heat when needed, and artificial light to a totally disabled employe. We think the service should at least be commensurate with the need.—*Southern Surety Co. v. Board, 235 S. W. 240.*

THE New York Supreme Court, Appellate Division, on November 16, 1921, held that the poisoning of fingers from dipping the hand in a solution in the development of photographic plates in the course of employment which occurred some five hundred times each day during a week was not an "accident" for which compensation could be awarded, an "accident" being an event which takes place without foresight and expectation and which occurs on the instant rather than something which continues, progresses, or develops.

The court states the facts:

The claimant was employed by a photographer in the development of

photographic plates. It was necessary for her more than five hundred times each day to dip plates held in her left hand into a poisonous chemical solution. Having performed this work continuously for more than a week, her fingers became red and swollen. She went to a physician who gave her treatment. Eventually the end of the little finger of her left hand became mummified, gangrene set in, and an amputation thereof becoming necessary was performed. The pathological cause of her injuries was the contraction of the blood vessels of her finger through the gradual action of the chemical solution. . . . It seems to me, therefore, that as the injuries in the case arose from the application of a poisonous solution during the working hours of the claimant for a period of more than seven days, and as the application was voluntarily made, she received no accidental injury for which an award can be properly granted.—*Jeffreys v. Charles H. Sager Co., 191 N. Y. S. 354.*

Two judges dissented. (This decision is not final there being open an appeal to the Court of Appeals.)

ASSOCIATION LETTER

By WILLIAM ALFRED SAWYER, Secretary

THE annual meeting of the American Association of Industrial Physicians and Surgeons will be held in St. Louis, Mo., on May 22 and 23 at the Medical School of Washington University. A splendid program is being prepared and the largest attendance in the history of the organization is expected. Many matters of interest and importance will come up for consideration.

Railroads are offering reduced rates for the A. M. A. meeting which is the same week, and it is hoped that as many of our members as possible will avail themselves of the opportunity. The necessary credentials for reduced rates may be secured from the secretary of the American Medical Association. Dr. Louis H. Behrens, 3525 Pine Street, St. Louis, Mo., heads the local Committee on Hotels for the American Medical Association.

The membership drive continues to go forward slowly. A number of our members are doing splendid work in securing new members. Have you done your share?

Following is a list of recent new members:

Dr. Tullie Van Boyd, Morris Packing Company, East St. Louis, Ill.; Dr. W. L. Adams, Fresno Flume and Lumber Company, Fresno, Calif.; Dr. Frederick W. Dersheimer, National Lamp Works, Cleveland, O.; Dr. Frederick Bauer, Plankington Packing Company, Milwaukee, Wis.; Dr. Thos. H. Wagner, American Steel and Wire Company, Joilet, Ill.; Dr. C. C. Booth, Republic Iron and Steel Co., Youngstown, O.; Dr. C. E. D. Lord, Ruth, Nev.; Dr. H. M. Neale, Upper Lehigh, Luzerne County, Pa.; Dr. M. M. Crawford, Federal Reserve Bank, New York City; Dr. R. M. Cleary, National Lamp Works, Buffalo, N. Y.; Dr. W. E. Fairfield, Clinic Building, Green Bay, Wis.; Dr. J. E. Morris, Olean, N. Y.; Dr. R. B. Morris, Olean, N. Y.; Dr. A. G. Hubbard, Buffalo, N. Y.; Dr. Lloyd Noland, Tennessee Coal, Iron, and Railroad Co., Birmingham, Ala.; Dr. B. F. Lowry, General Chemical Company, Cleveland, O.; Dr. Belle Thomas, Federal Reserve Bank, New York City; Dr. E. W. Bullock, New England Telephone and Telegraph Co., Manchester, N. H.; Dr. S. W. Hobson, Newport News Shipbuilding and Dry Dock Co., Newport News, Va.; Dr. O. M. Spencer, U. S. P. H. S., Washington, D. C.; Dr. G. D. Ayer, Atlanta, Ga.; Dr. Russell F. Sheldon, New England Confectionery Company, Boston, Mass.; Dr. C. T. Sharpe, Life Extension Institute, New York City; Dr. T. G. Allen, Buffalo, N. Y.; Dr. Emmott Howd, Troy, N. Y.; Dr. J. A. Turner, U. S. P. H. S., Washington, D. C.; Dr. J. W. S. Brady, Harvard School of Industrial Hygiene, Boston, Mass; Dr. C. W. Kilker, Cincinnati, O.; Dr. G. W. Staben, Springfield, Ill.; Dr. C. E. Dumke, Louviers, Colo.; Dr. R. J. C. Strong, Fairbanks, Morse, and Company, Beloit, Wis.; Dr. G. R. Thompson, Washington, D. C.; and Dr. John S. Alley, Midvale Steel Company, Midvale, Utah.

A physician connected with the U. S. P. H. S. desires to secure a position with some industry in the West or Middle West. He is a graduate of a Class A school and well prepared to take up industrial work. If anyone knows of a connection he might make, the secretary will be very glad to furnish his name and address.

A young physician just completing two years hospital training, and closely associated with a well known surgeon of Atlanta, Georgia, is desirous of securing a position in which he will have an opportunity to do industrial surgery.

The secretary of the American Association of Industrial Physicians and Surgeons occasionally receives inquiries regarding positions for physicians desiring to enter the industrial field.

Just recently the mail brought three such letters and it immediately occurred to the secretary that it would be well if the Association made an attempt to keep informed regarding such matters. By acting as a clearing house for such information, the Association might give valuable advice both to the industries and to industrial surgeons. If you know of any vacancies or, if you know of any physicians desiring a change or wishing to take up this particular type of medical work, will you not communicate with the secretary? It will doubtless be of benefit all around if we can know of such cases.

During the past year the secretary has known of at least a half-dozen opportunities, but in no instance was he able to offer a good suggestion. There is no reason why the Association should not conduct an embryo employment department. Some members of the Association doubtless know of positions which are unfilled, and others perhaps know of excellent physicians who would be fitted for these positions. Can we not get together on the matter and render some real service?

As a result of intervention by the International Labor Office, the Persian government has taken steps to remedy the conditions under which women and children have been working in carpet weaving in Kerman. The new rulings temporarily in force prohibit the employment of children under ten years of age, limits the working day to eight hours, and provides seats for workers, and a midday rest period.

Up to 1914, comparatively little coal-tar benzene (benzol, C_6H_6) was used in the United States. Since then its use has steadily become more extended until now benzene poisoning is a menace in American industry. Alice Hamilton, Boston, reviews the literature in the *Journal A. M. A.*

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Shriners Hospitals for Crippled Children

Humanitarian Movement Will Reclaim the Child for Himself and Society

By FORREST ADAIR, Secretary Board of Trustees, Shriners Hospitals for Crippled Children, Atlanta, Ga.

INSPIRED by the work of the Scottish Rite Hospital for Crippled Children at Atlanta, Ga., the Ancient Arabic Order of the Mystic Shrine at their last convention voted to establish a central hospital of 150 beds for crippled children at St. Louis in conjunction with Washington University. A survey revealing approximately 480,000 crippled children in the country, however, caused the Shriners to change their plans and to see the feasibility of diverting some of the $2,000,000 raised for the Central hospital to the construction of five hospitals located in cities in various parts of the country.

Contracts have already been let for five hospitals. For the St. Louis hospital of eighty beds $150,000 was allowed for grounds; $300,000 for buildings, and $50,000 for equipment. For the San Francisco hospital of fifty beds not more than $250,000 was allowed when fully equipped. For the Shreveport, La., hospital $250,000 was allowed. For the Montreal, Canada, fifty bed unit $250,000 was allowed, the same amount being set aside for the Minneapolis-St. Paul hospital. Upon the completion of these hospitals, five others will be built in Portland, Ore., New England, Virginia, Pennsylvania, and in one of the Rocky Mountain states.

During the past decade the minds of the people have been more than ever turned toward the helping of the less fortunate and large endowments have been made, immense sums contributed toward charitable and philanthropic institutions and great foundations created.

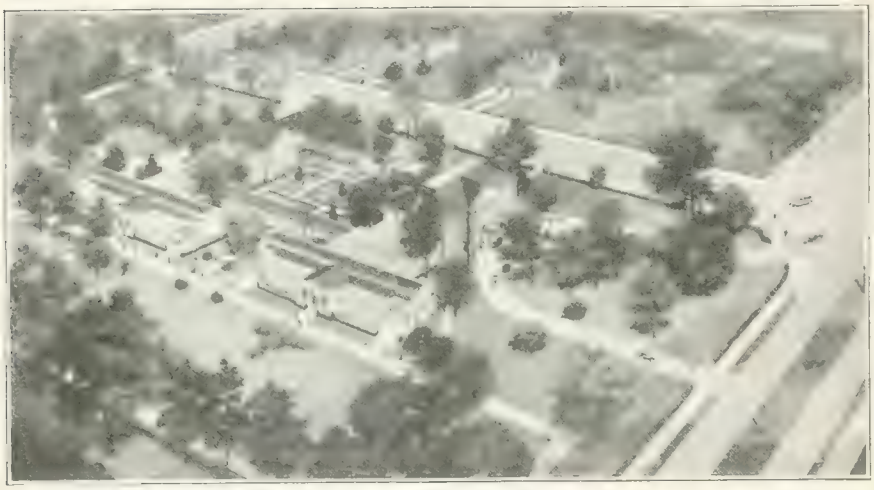
Hospitals, sanitariums, and homes have been founded for the tuberculous, the blind, the deaf, but for some reason one class of unfortunates were in a measure greatly overlooked,—the crippled children. Indeed, there have been homes for crippled children; places where cripples were carried, fed, clothed, and given some little education, but no serious or successful effort was made to correct their deformities and send them back to the homes of their parents where they belonged. Possibly this was because there was a prevalent idea that a child afflicted with clubfeet, infantile paralysis, tuberculous spine, or joints, or any of the diseases that come within the scope of orthopaedic surgery was hopelessly incurable, and even the parents accepted such an affliction as a curse and resigned themselves to bear the cross until a kind Providence removed the child.

May Become Economic Asset

Orthopedic surgery in the past few years has dispelled the passive attitude of parents and public and has made them realize that the crippled child need not remain a drag on himself, his family, and society. He may, if properly operated on and treated, become normal with the normal child's chance for physical and mental development. He may be enabled to earn his own living, may become a contributor to the social and economic life rather than a parasite.

Crippled children usually owe their condition to congenital or acquired deformities, to paralysis, or to tuberculosis of the joint and bone. Early treatment is imperative in all cases. Especially following infantile paralysis or tuberculosis of the joint and bone can early treatment save the child months of suffering as well as permanent deformity. Before special hospitals for children were established the treatment was often delayed until the bones had hardened in an unnatural posture and loss of function had become absolute. Often the oncoming of such a disease as tuberculosis of the hip is insidious; the child limps or cries a little; there seems to be no urgency. The condi-

Scottish Rite Hospital for Crippled Children, Atlanta, Ga. [illegible] as well as the model for the Shriners' [illegible]



Proposed hospital at Shreveport, La., one of the five now under construction by the Mystic Shriners for indigent crippled children.

tion progresses and the child becomes hopelessly crippled. Prompt immobilization of the affected joint, a bed in an open-air ward, and good feeding will not only prevent suffering but will insure in a few months recovery without disability.

The necessity for immediate expert treatment in infantile paralysis is seen when one realizes that this disease is responsible for one-third of the crippled children in the United States.

General hospitals cannot adequately care for the slow and tedious cases of such deformity. The open air wards, the splint and appliance workshops, the educational facilities are not available. In such cases there is no natural convalescence. Operations, manipulations, and even prolonged hospitalization do not finish the treatment. The most thorough after care must prevent deformities from reappearing, weakened muscles from sagging, posture from relapsing. A system of muscle re-education, of teaching the child to use muscles atrophied from long disuse, is necessarily the function of the orthopaedic hospital.

Emphasis is being placed today on preventive measures. Efforts are being made to stamp out poliomyelitis and tuberculosis as well as diseases which often cause congenital deformity. Pasteurization of milk has done much to break the chain of infection in infantile paralysis and bovine tuberculosis. But these diseases are still prevalent and the burden for caring for their victims and restoring them to normal function rests on an enlightened society.

Nearly seven years ago the Scottish Rite Masons of Atlanta, Ga., started in a modest way in two little cottages with twenty beds the Scottish Rite Hospital for Crippled Children. Dr. Michael Hoke of Atlanta, orthopaedic surgeon, agreed to give his services free. The good results obtained were pronounced by those connected with the hospital as nothing short of miraculous and the little hospital began to attract attention.

Growth of Plan Sketched

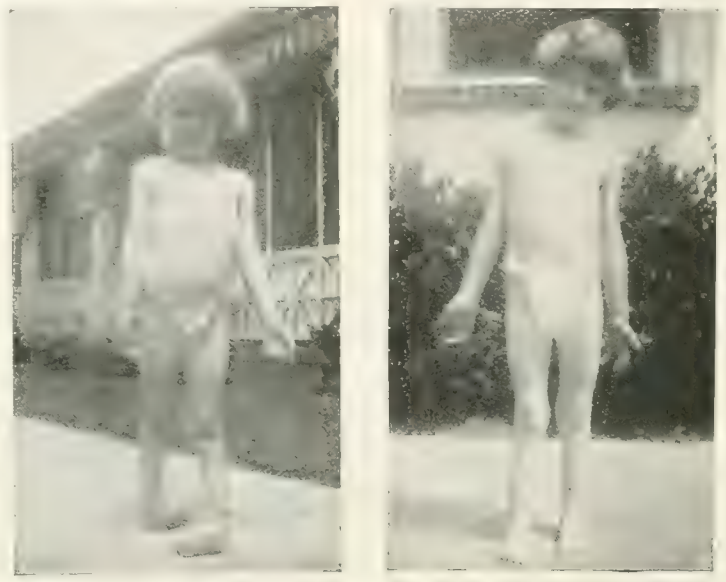
In order to provide more room, money was quickly raised and a new hospital erected provided with an administration building on the second floor of which were operating rooms and all necessary apparatus and appliances. On either side was a wing one story in height and with ramps leading out to the ground so that the children could be rolled out into the sunshine in wheel chairs and beds. Miss Lillian Carter was made superintendent of nurses of the hospital.

John H. Atwood of Kansas City visited the hospital and wrote of it as the "Miracle House." Frank C. Higgins, the Masonic writer, had a daughter stricken with infantile paralysis in New York City in the epidemic of 1916 who had spent four and a half years in the crippled children's "homes" in the East. She was admitted to the Scottish Rite Hospital and after five months was made to walk, and Higgins wrote of the hospital in the *New Age*, calling it the "Temple of Babies' Smiles."

During this time Noble W. Freeland Kendrick, Past Potentate of Lu Lu Temple, Philadelphia, became the head of the Nobles of the Mystic Shrine, and as he had had some personal experience with crippled children's homes, his mind and his heart naturally turned toward the crippled child. As this order had about 500,000 members, Kendrick introduced a resolution to assess each member two dollars per annum which would yield a fund of one million dollars a year. His resolution called for the erection of a large central hospital which was to have been built at St. Louis, Mo.

The Shriners elected a Board of Trustees who were entrusted with the carrying out of the spirit of the resolution, this Board being composed of Nobles Sam P. Cochran, Dallas, Tex., chairman; W. Freeland Kendrick, Philadelphia, vice-chairman; Forrest Adair, Atlanta, secretary; Philip D. Gordon, Montreal, Canada; Bishop Frederick W. Keator, Tacoma, Wash.; Dr. Oscar M. Lanstrum, Helena, Mont.; and John D. McGilvray, San Francisco, Cal.

Last September the entire Board met in Atlanta and while here visited



Indicative of the cases that the hospitals will treat is that of Agnes Shumake who was cured of clubfeet in five months at the Atlanta hospital.

Children deformed from infantile paralysis have been straightened after several months of treatment at the Scottish Rite Hospital.

the Scottish Rite Hospital for Crippled Children. They were greatly impressed by the work being done in restoring crippled children to their normal condition and immediately decided that rather than put $2,000,000 in a large central hospital, which would be inaccessible except within a radius of about 300 miles, they would divide this fund and build several hospitals. As the hospital in Atlanta can be duplicated for about $200,000, ten such hospitals could be erected with the sum of two million dollars.

An Advisory Board of Orthopaedic surgeons was elected composed of the following: Dr. Robert H. Osgood, Boston, Mass., Chairman; Dr. Michael Hoke, Atlanta, Secretary; Dr. A. Mackenzie Forbes, Montreal, Canada; Dr. Nathaniel Allison, St. Louis, Mo., and Dr. John C. Wilson, Los Angeles, Cal. They will attend all meetings, advise and assist the Board in this work and in the actual operation of the hospitals.

The work that these hospitals will do can be guaged to some extent by the accomplishments of the Scottish Rite Hospital at Atlanta. Here every form of disease coming under the general term of orthopaedics is treated The present capacity of the hospital is fifty-six beds.

During the first year of the hospital's existence sixty-two patients were received into the hospital and 176 into the clinic. Of these, twenty-seven were cured in the hospital and fifty-two in the clinic, the others being still under treatment at the end of the year. During the second year 157 children were received into the hospital and 231 into the clinic. Of these, sixty-one were discharged as cured from the hospital and 127 from the clinic. The number of operations performed by the medical staff was 225. In the third year, 100 patients were entered in the hospital and 137 in the clinic. Of these, fifty-seven were discharged from the hospital cured and twenty-eight from the clinic. During the year 190 operations were performed. The fourth year saw the admission of 132 children into the hospital and fifty-six into the clinic. Of these eighty-four were discharged from the hospital and 104 from the clinic. Operations for this year totaled 255.

Typical of the many cases cured at the Scottish Rite Hospital and of the cases that the other orthopædic hospitals will treat is that of Agnes Shumake of Atlanta, Ga., whose club feet were made normal in five months. Children deformed from infantile paralysis have been straightened and cured after several months of treatment at the Scottish Rite Hospital.

The change in physical condition of these children is also marked by great mental changes. Children who had become glum and despondent, had come to think themselves apart from the normal world, who were on the road to developing psychoses, when treated and cured develop the customary childlike attributes of optimism and hope. Soon they become as carefree and happy as the normal well child.

It is evident that with five or ten such hospitals and eventually one in every state of the Union the Shriners' Hospitals for Crippled Children will reclaim from dependence and disease many hopelessly crippled.

Children will be admitted to the hospital regardless of creed or fraternal affiliations. They will be treated and cared for absolutely free. The principal requirements are that they be capable of improvement, that they be of normal mentality, and that they be unable to pay for medical service and treatment given.

The Shriners' Hospitals have been established to benefit helpless humanity, to prevent possible pauperism, to turn wealth consumers into wealth producers, and to exemplify Masonic principles.

The Principles of Ante-Natal and Post-Natal Physiology

One seldom finds a book that contains as much information as the recent volume under the above title by W. M. Feldman. M.B., B.S. (London). The wealth of knowledge embodied in this book of 694 pages presents the reader not only with a great deal of data on the subject of ante-natal and post-natal physiology, but he discusses at length many allied subjects, such as theories of heredity, mechanics of development, and physiology of fertilization, the whole theses displaying a great deal of erudition.

If there is any criticism on this excellent volume it is in the direction of the mathematical insertions scattered throughout the book. In some places the author devoted the greater part of a chapter to the presentation of mathematical formulas that detract from the interest of the book. He erred in the same direction in a previous publication, "The Jewish Child," a most valuable contribution in every other respect.

As a whole, however, one may find in the "Principles of Ante-Natal and Post-Natal Physiology" a great deal of interesting information. The volume would make a valuable addition to the library of every physician and scientist.

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Child Workers Injured Receive Benefits

Child workers between the ages of fourteen and sixteen who are injured on their way to continuation school are entitled to the benefits of the workmen's compensation act, according to a decision handed down recently by the Compensation Referee at Philadelphia.

Open Air Schools in Massachusetts*

By HARRIET L. WEDGWOOD, Assistant in School Hygiene, U. S. Bureau of Education, Washington, D. C.

AN INVESTIGATION was made by the Massachusetts Department of Public Health, during the school year of 1919-20, to learn how many open-air and open-window schools were being maintained in the state; how many of these were for physically subnormal children; what modifications and improvements in the regular public schools could be directly traced to the influence of open-air schools; and what recommendations might profitably be made.

Visitation, interviews and a questionnaire were used to elicit information along certain definite lines:

(1) The number of open air schools and open window rooms in the state; the number of pupils in each; how many physically subnormal children were in these schools and what percentage that number was of the entire school population and what percentage of the entire number of physically subnormal children in the state.

(2) The sentiment of school authorities and of health authorities as to the needs of the physically subnormal child, and the efficacy of the open-air school to meet those needs.

(3) The remedial measures that constitute the essential régime for improving the condition of pupils in these classes; and to what extent these essential features were uniformly provided.

(4) What remedial measures (such as abundance of fresh air, lower temperature, frequent or extended rest periods, special attention to nutrition with provision for feeding, frequent and thorough medical examinations with corrective measures, weighing at frequent and regular intervals, systematic keeping of health records, and efforts to secure home cooperation in health matters) had been undertaken for other subnormal children, with presumably less marked symptoms, not in special classes; and what features of the open-air school régime had been introduced into the regular public schools with a view to "keeping well children well."

(5) An evaluation of the results obtained in open air schools, with some information relative to costs, as compared with other methods of restoring to health the anemic, malnourished, pretuberculous, cardiac, neurasthenic, and choreic child, and of "keeping well children well."

The investigation showed a lack of standard practice, and a variation in standards and in recorded results which rendered impossible an evaluation of results of open-air schools, but the status and trend of the open air movement in the Commonwealth could be more or less accurately determined.

Opinions from school and from health authorities ranged from heartiest approval to just as hearty disapproval, with all possible variations between. Opinions differed as to the need for remedial treatment, and as to the treatment that is efficacious. Some approved of outdoor classes, but not of drafty rooms and fixed seats. Some thought communicable disease the one thing to be dealt with; some thought that nutrition work alone would solve the problem (though whether this meant extra feeding alone or feeding and rest and health habits is not certain). Some thought fresh air the essential feature of the school régime and others the lower temperature. Some gave the opinion that the rest hour was a non-essential; others that it was necessary but should be taken at home, and teachers should not be asked to stay and

The interior of a fresh air school in the Westfield, Mass., State Sanatorium.

Setting up the camp cots on the roof at 10 degrees Fahrenheit at Chelsea, Mass.

*Summarizing a survey and comprehensive report on this subject made by Miss Wedgwood in her former capacity as Health Instructor, Division of Hygiene, Department of Public Health, Massachusetts.

see that pupils rest; others, that lack of rest was partly responsible for these children's lowered vitality, that conditions at home did not permit the child to rest during the day (hardly at night), and therefore the rest hour must be provided at school and the child be *required* to rest.

Opinions and practice in regard to extra feedings for children differed. A few thought the feeding of school children, under *any* circumstances, an unnecessary and dangerous practice. Some believed that the lunch should be paid for by the child, and that most children could be persuaded to pay the small sum asked for the mid-morning cup of cocoa or of milk. The visitor observed, however, in some of these schools that a few children in the open air classes did not pay for lunch, and such children went without the lunch. Some teachers expressed the opinion that the better habits of eating learned at school, where pupils sat down to meals together, contributed very much to their general improvement. They learned to like vegetables and other healthful foods, ate more slowly and in a happier frame of mind than at home.

Medical examination of these children varied tremendously in different places as to frequency and scope. Weighing and measuring varied from weekly to annually, or semi-annually. The average monthly weight gain varied from 5.21 ounces to 13.43 ounces, the latter average being in a school with windows entirely open, with mid-morning lunch and noon meal provided, and a sleep period on cots in the open air.

The temperature varied from no artificial heat whatever, to a regulated temperature of 60 degrees. The type of schoolroom varied from the open pavilion (in a hospital school) to rooms with windows on one side that could be opened for half the window space, and a cheese cloth covering over this space to keep out dust. Some of the rooms were on the ground floor, some on the second or third with toilets in the basement. In the case of children with heart weaknesses, the number of flights of stairs to climb is important.

In the year of the investigation, ten cities had open window rooms: Andover, Boston, Cambridge, Chelsea, Lowell, Lynn, New Bedford, Newton, Springfield, and Worcester. Attleboro and Braintree were planning to open classes in September, 1920. The inquiry showed about a thousand *well* children in open window rooms of public schools with mid-morning lunch provided. There were 1,137 subnormal children in the open air public schools and 690 in sanatoriums and hospital schools, a total of 1,827 subnormal children in open air schools, or three-tenths of one per cent of the average membership in the public schools of Massachusetts.

The report on the investigation suggested that an experimental study [illegible] some definite conclusions with reference to open air schools; and a number of schools expressed their willingness to cooperate in such an experiment, if it should be made.

Similar experiments carried on in New York City schools have resulted in higher scholarship and improved conditions of health.

Here the curative [illegible] therapy Open-Air School at Westfield, Mass.

California Social Work

THE California Legislature has before it a bill defining social work and social worker as well as providing for the examination and registration of social workers. A person misrepresenting himself as a registered social worker is penalized under this bill, the fine being not less than $10 nor more than $100 for the first offense.

The bill defines social work and social workers as follows:

The term "social work" as herein used is declared to mean all protective and preventive work such as applies to traveler's aid, dancehall supervision, social hygiene, and other protective and preventive work; all relief work such as applies to relief organizations or to medical social service; all child-caring work, including character-building work, in children's institutions; all correctional work, including that generally performed by probation officers, parole officers, prison workers, workers in correctional schools and detention homes, and workers with the subnormal or mentally handicapped; all welfare work, including that generally employed by non-commercial employment agents, personnel managers, and welfare workers; all settlement work, including that pertaining to community organization, settlement club work, physical training in settlement work playground work and the like; field investigation, in its bearing upon housing and immigration, or upon supervisoral agencies for welfare work, or upon endorsement agencies; the work of social service executives; all welfare work in educational institutions; all form of social welfare work. The term "social worker" as herein used is declared to mean a person engaged in social work, as that term is herein defined.

The bill was drafted by social workers and [illegible] meeting of the California Conference of Social Work. The *Survey*, in noting its possible effects, says:

"R. N." has become the accepted trademark of the registered nurse. Representing as it does, a standard of training and a certain proficiency, it [illegible] is by the medical profession. If this bill passes, perhaps "R. S. W." will become the nomenclature of the registered social worker in California.

Food Knowledge the Basis of Nutritional Control*

Physical Growth, Mental Vigor, the Ability to Get Things Done, Depend Upon the Diet

By ALICE M. HEINZ, M.A., Formerly Dietitian for the California State Board of Charities and Corrections, Los Angeles, Cal.

THAT the upper limit of the size of an animal is determined by heredity and the stature to which an animal may actually attain within this definitely fixed limit, is directly related to the way it is nourished during its growing period, concluded Waters, one of our nutrition workers, after a series of experiments along this line. Since this conclusion is based upon scientific study, it proves the urgent necessity of the intelligent feeding of children, for, after all, growth studies pertaining to other growing young animals will apply to children as well.

If we would be sure that a proper diet is being selected, the following points should be given due consideration.

Any properly balanced diet for growing children must contain:

(1) Foods which will yield sufficient heat and energy for the needs of the body, in other words, must have sufficient caloric value.

(2) It must supply the proper food elements for replacing worn out tissues whether these be bone, muscle, or nerve tissue, but, over and above this, it must be ample enough and so selected as to supply

(3) The food elements necessary for the growth and formation of new and enlarged tissues-bone, muscle, brain, nerve, and tooth, a dietary requirement which we need not consider in the case of an adult.

How Must One Eat?

In order, then, that children may grow up to be strong and sturdy of body, straight limbed, and blessed with good sound teeth, it is essential that those whose responsibility it is to select the diet, acquire some knowledge of food values.

Formerly much emphasis was laid upon the caloric value of a diet. All foods, whether they be protein, fats, or carbohydrates, yield a given amount of heat in the process of combustion. The unit by which we measure such heat is termed the calorie, which is the amount of heat required to raise four pounds of water one degree Fahrenheit.

Underwood & Underwood.

There are critical periods in the child's physical career when deficient nutrition means arrested processes that cannot later be made up. Rowntree in his "Poverty" differentiates between earning insufficient to attain the minimum necessaries and the "secondary" poverty where deficiencies result from unintelligent household budgets. Nutritional work, therefore, becomes a branch of applied economics.

Underwood & Underwood.

Los Angeles physicians have established a "Mothers' Educational Center" where parents can bring their babies for mental and physical tests, and may gain reliable recommendations on child care and obtain in the scientific supervision of their children a practical demonstration of the relationship between diet and ordered development.

Each of our food principles yield a different number of heat units: one gram of pure protein will furnish four calories; one gram of fat will furnish nine calories; one gram of carbohydrates will furnish four calories. These are the approximate physiological fuel values of the food constituents, allowance having been made for loss in digestion.

Various factors govern the heat requirements of the individual, chief among which are age, activity, sex, and climate. Children require a greater number of calories in proportion to their size and body weight

*This is the first of a series of practical articles on foods and nutrition based upon specific studies made by Miss Heinz for the State Board of Charities and Corrections, California.

than do adults, this because of their greater activity and growth, and because they radiate heat more rapidly.

The following table will show the approximate number of calories required by children of different ages. These are only average figures and individual children will require more, or possibly less, according to their rate of growth, activity, and size.

Age	Cal. Daily
1- 2 years inclusive	1,000-1,200
2- 5 years inclusive	1,200-1,500
6- 9 years inclusive	1,400-2,000
10-13 years inclusive (girls)	1,800-2,400
10-13 years inclusive (boys)	2,300-3,000
14-17 years inclusive (girls)	2,200-2,600
14-17 years inclusive (boys)	2,800-4,000

Foods are classified according to their chemical composition as protein, carbohydrates, and fats. Some are rich in mineral matter, therefore valuable in the diet, while others furnish the necessary vitamines. Today the two latter are considered of primary importance in the selection of a proper diet, and the old time calory has been relegated to a place of secondary consideration.

Nutrition class formation in School No. 9, Rochester, N. Y. The children are seated in the order of their respective gains. Parents are seated back of them. The physician is conducting the class, the nutrition worker is seated. The school principal and director of health education are standing. This group not only sees that gains are made, but teaches the whys and wherefores of the procedure.

The Protein Foods

The protein foods are those which contain nitrogen, hence also spoken of as nitrogenous foods. They are the particular foods which will build muscle tissue, indeed, they are the only foods which will do this and they are, therefore, of great importance. We have two classifications of proteins, namely, the animal and vegetable proteins. The animal proteins are those found in eggs, milk, meat, fish, and cheese, while cereals, legumes, and nuts furnish the bulk of our vegetable proteins.

Animal proteins are capable of building body tissue with far greater efficiency and ease than are vegetable proteins. This is due partly to their chemical structure and partly to a difference in absorption.

The best protein food to select for a child's diet is, of course, milk. The curd of the milk is the protein or casein, combined with some of the mineral matter, chiefly calcium. If a child's diet contains a sufficiency of eggs and milk, we need not be concerned about the omission of meat from the diet, especially in the case of the nursery children. Since the nutritional value of eggs, meat, cheese, and fish as well as milk, is not very different, these may be used interchangeably in the diet, as for instance, macaroni and cheese made after a good recipe, or an omelette, being equivalent to a meat dish.

Animal proteins, that is, the foods containing these proteins, also supply heat to the body and furnish mineral matter and the essential vitamines, the latter being found chiefly in milk and eggs and to a smaller extent, in the other foods.

Fats for Hardiness

Fats in a diet yield heat in the process of combustion and are essential for the development and nourishment of brain and nerve tissues, besides which animal fats like butter, beef suet and cod liver oil furnish one of the essential vitamines, Fat Soluble A. Vegetable fats like peanut, corn, cocoanut, and cotton seed oil, some of which are used in the manufacture of butter substitutes, do not yield any vitamines, and their substitution to the exclusion of butter in any diet unless definitely compensated for in other foods, particularly one allowing only a minimum amount of milk, also, should be rejected as very poor, really harmful economy.

Carbohydrates Supplement Diet

The average diet furnishes an ample, if not excess amount of starches and sugars, foods usually classified, together with cellulose which forms the fibrous structure of plants, as carbohydrates. Starches and sugars supply heat and energy to the body but when taken in excess, they build fatty tissue; however, they have never been known to build muscle tissue, or bone, or nerve tissue. This is an important thing to be borne in mind, for it means that sweet foods as well as starchy foods, will not build strong muscular bodies, even though they may aid in producing a sleek looking one. Carbohydrates have an important place in the diet, but they are not to be regarded as substitutes for proteins and fats, but should be looked upon as supplements.

It is highly advisable not to develop in children a desire for sweets. McCollum of Johns Hopkins says it is as great a crime to develop in a child an abnormal craving for sweets as it is to develop in him a taste for alcohol. Candy and sweets should be regarded as food. Their place in a

Rochester, N. Y., [illegible] graduate whose gain was 98½ pounds in thirteen weeks, or 498 per cent of the normal rate of gain. There was no guess work or haphazard method in this case, as his chart will show. Photograph through courtesy of Dr. [illegible] of the University of Rochester.

diet is with a meal, and not before or after a meal. Sugar is irritating and usually constipating. It is readily fermented in the stomach causing a form of indigestion; moreover, it combines with any calcium present in the diet, thus robbing the body of some-essential mineral matter. Lastly, sweets take the edge off an appetite and cause children to refuse more nutritious and essential foods, which is the most serious argument against the promiscuous feeding of sweets.

Cellulose, another of the carbohydrates, is digested only when in a young and tender form but even in its older and indigestible form it is of great value because of the necessary bulk which it supplies to a diet.

Mineral Matter Essential

Besides the food constituents already mentioned, two others even though required in smaller amounts by the body, are of equal importance in any diet. These are, first of all, the mineral matter, and secondly, though of no less importance, the three known vitamines.

Mineral matter is found in every tissue of the body, in all the juices, the blood, bones, and teeth. Calcium, phosphorus, iron, potassium, and sodium are the most important ones, but magnesium, iodin, flourin, etc., are also necessary to the body. Milk is our chief source of calcium. Green vegetables furnish iron, spinach being especially rich in iron. Raisins also contain a large percent of iron. Phosphorus occurs in combination with fats, as in the fat of egg yolk and meat, and is found in milk and in many of the vegetables.

Iron is an essential element of hemoglobin and of the chromatin substances while calcium constitutes a larger percentage of the body weight (about 2 per cent) than does any other inorganic element. More than 99 per cent of the total amount of the calcium is found in the bones. Phosphorus is a necessary constituent of brain and nerve tissue.

The Vitamine Content

Lastly, although their presence in the diet is of very greatest importance, we shall consider the vitamines, the growth promoting health insuring constituents found in certain foods.

At the present time we know of the existence of three specific vitamines, although there may possibly be a fourth. The three vitamines are known as:

(1) Fat-soluble A found chiefly in milk, butter, eggs, beef suet, and in green vegetables. (2) Water-soluble B found chiefly in yeast, eggs, green vegetables, seeds, and cereals. It is also found in some of the root vegetables, although some like the best are wholly deficient. (3) Water-soluble C found chiefly in citrous fruits and in the leafy vegetables. Tomatoes are also rich in this vitamine.

Fat-soluble A is necessary for growth and in its absence there often develops an eye disease known as xerophthalmia.

Water-soluble B is necessary for growth and also for the prevention of polyneuritis or beriberi.

Water-soluble C, the latest to be recognized, is the antiscorbutic vitamine.

Since the discovery of the vitamines, the importance of the leafy vegetables in the diet has become prominent. Because they are especially rich in vitamine content and can be eaten raw in many instances, thereby preserving the full value of the vitamine, these vegetables have been termed the "protecting foods." It is highly essential that these should be included in the daily diet and that all children should be taught and made to eat them.

Let us then, when we plan a diet for children, see that it contains enough milk, about three to four glasses a day for each child, that it furnishes meat or a proper meat substitute each day, and that along with these things, it supplies butter, some green vegetable and fresh fruit each day. If care is taken to provide these foods, the rest of the diet will take care of itself.

Food Requirements of Old Age Important

Diet is quite as important for keeping the aged in physical trim as it is for the growing child or the person in mature life, says James Buchanan Stoner, Surgeon, United States Public Health Service in *The Forecast.*

The problem of eating in old age is mainly that of avoiding too much food. The man above sixty should eat just enough food for his needs, he should avoid any foods which lead to indigestion, he should eat slowly, masticate thoroughly, eating only the simplest foods. Meat should be sparingly eaten. Fresh vegetables and ripe fruits, especially cooked fruits, should have an important place in his diet.

Fatness or thinness in old age is largely dependent on diet, and the old person who realizes this will not add superfluous layers of flesh, by overeating. By eating just enough for nourishment the man or woman past sixty can stave off the process of bodily degeneration, maintaining for years the balance between the processes of decay and repair.

The tendency to put on flesh after the age of forty is common to men and women of all races. This is due to the lessened nervous expenditure and lessened thyroid secretion, therefore resulting in a lessened rate of burning up of foodstuffs in the body. Unless the usual amount of food eaten in former years is curtailed too much flesh is gained.

The modern wise man who has reached what is called "old age" should have a diet chart made out for him by a physician who has carefully studied his habits and needs. Three dietary rules which might well be followed in old age are: First, to diminish the total quantity of food eaten; second, to take food frequently but in small quantities; and third, to eat only easily digested food which does not produce too large a residue of waste matter.

Regularity in diet is next in importance to decreasing the diet. Intervals between the taking of food should never exceed six hours.

The mayor of Crisfield, Missouri, has abolished the office of city health officer as a useless expense to the city.

Physical Education in New York Rural Schools

By DANIEL CHASE, Supervisor of Physical Education, State Department of Education, Albany, N. Y.

NEW YORK was the first state to realize the need of the rural school child for supervised physical education and in 1916 enacted a statute providing for a program which should be compulsory in all the schools of the state. Before that time it was thought that children in rural districts received plenty of exercise in farm chores and in walking to school. It was overlooked that the small accessory muscles were little used in every day farm work and hence undeveloped in rural children. To meet this need and to offset awkwardness and heaviness the relief drills for country boys and girls were made lively rhythmic exercises involving movements which tended to develop the finer coordinations making for gracefulness, poise, and physical development.

It was also realized that the rural child distinctly needed supervised physical education to develop in him teamwork, loyalty, cooperation, for games and teams were new things to the child from isolated communities. The lessons of working with others learned on the playground would be a factor in making him a social being.

What New York state inaugurated, other states soon followed, and a year or so afterwards New Jersey, Nevada, Rhode Island, California, Maryland, and Delaware put on their statute books compulsory physical education laws and proceeded to enforce their programs. By the spring of 1921 a total of twenty-seven states had more or less effective legislation requiring the teaching of physical education.

The complete program of physical education involves four divisions: First, physical examination of all children; second, teaching of hygiene; third, order of exercises; fourth, social, moral, and health training on the playground and athletic field.

When the physical education law was enacted in 1916, the legislators thought it wise to insist that all districts have some assistance from specially trained teachers of physical education. The law was mandatory and in the first two years of its operation the district superintendents of schools were encouraged to engage special teachers or directors and put them in charge of the supervising of this work. It was then and is now the duty of the State Department's staff to inspect, instruct, and supervise these specialists.

It was unfortunate that so many of these special teachers were not familiar with country school conditions and the problems of the rural teachers. It was more unfortunate that the trustees and patrons of the rural schools as well as the teachers themselves were not at all familiar with the full purposes of the program. Moreover, many of the special teachers were not fully trained in physical education and did not know how to supervise and help country teachers. The work of some of the well trained people was handicapped also and hindered in some sections by local opposition. Wherever the right spirit of cooperation among superintendents, teachers, and supervisors obtained, worth-while results followed, and in many sections the early opposition was overcome and the program put on a solid footing which still continues.

Special Teachers Optional

A change in the law at the end of the second year made it optional for the small districts as to whether they should engage these special teachers or not but still required the same amount of instruction from the rural teachers and provided them some assistance from the State Department in the form of a staff of special instructors for rural schools. These instructors, eighteen in number, were assigned to definite sections of the state to work with the district superintendents.

During the last three years, rural teachers not having local supervisors have been required to attend four to six conferences each year at which they have been taught the requirements of the state syllabus and how to present the work to the children.

Under Section A of the Physical Education Syllabus and particularly in the part suggesting the formation of health clubs, this instruction has proved very effective. It was found in the 1921 survey of the state that 71 per cent of the one and two teacher schools had pupil health clubs organized. There has been a decided improvement in the amount of attention given to the daily as well as annual health inspection of country pupils.

Under Sections B, the daily relief drills and setting up exercises were outlined for periods of five to six weeks at a time and carefully demonstrated and taught. Observations show that teachers themselves have profited greatly by this instruction. The improvement in posture, response to command, alertness, grace, and coordination on the part of the teachers who have attended these conferences and wholeheartedly taken the work has been marked.

Under Section C, talks on the teaching of hygiene and formation of health habits were given. The valuable bulletins on the teaching of health, issued by the Department of Education, Washington, D. C., were distributed and explained and other helpful literature supplied.

Under Section D, games were taught and methods of organization for play and team contests outlined and explained. Singing games and rhythmic exercises were given. As far as possible the attempt was made to impress the teachers with the educational value of this form of school activity. A particularly noteworthy bit of organization work was done in 1921 when the first State-Wide Physical Ability Test for Rural Schools was conducted. About five thousand schools succeeded in carrying out this contest. County championships were awarded in all but four of the counties and district championship certificates were given in one hundred and sixty-two supervisory districts of the state. It was a tremendous task and results were made possible only through the cooperation of the superintendents and the conscientious work of the county teachers. Play Festivals and Field Days were organized in larger numbers than ever before. In 1920 the State Staff organized and conducted eighty-eight such affairs and in 1921 nearly doubled that number.

But while New York has shown great progress in physical education, the present outlook is not so encouraging in spite of the excellent work. The New York legislature of 1921 failed to make provision for the retention of the state instructors to help the rural schools. While it is still possible for the districts to engage their local supervisors, and the state continues to pay one half of the salary up to $1,200, the law was so changed that schools with less than

twenty teachers are not required to have such help. Consequently, only a small percentage of the rural teachers have any special supervision or assistance this year.

Requests for help at conferences have been far in excess of the ability of the present staff to handle. There are but three men left where once were nine men and eighteen women. Many worth-while meetings have been held in which instructors from the normal schools and large villages have helped. Yet the conference program has been very inadequate. All schools have been supplied with a special rural syllabus on physical education. The staff has also prepared and sent to district superintendents a set of printed outlines of relief drills following plans used in the conferences, enough to supply the requirements of a school for a full year.

Many requests come for visitations and assistance which the staff is unable to comply with. However, extensive correspondence is maintained and suggestions as to health clubs, field days, exercise and play programs are being given. It is apparent that nearly all the conscientious teachers are doing their best to keep up the program for their pupils.

This year the small staff cannot give much time to the schools desirous of continuing the physical ability test. Printed matter is sent to superintendents who wish to conduct the test, and county and district championships are awarded to those superintendents who make reports.

Much valuable assistance is being given by agencies not definitely connected with the schools, interested in promoting various phases of physical education.

The sections that have been enterprising enough to make plans engaging the visiting teachers are undoubtedly securing for their boys and girls a much larger share of the benefits contemplated by the physical education program than are the less favored districts. At present, not more than 20 per cent of the schools have such service. A larger extension of this plan is to be expected. It is clear that supervision is needed and will be needed until such time as all the teachers working in the country schools shall have been fully trained. The reorganization in rural school administration now being proposed by the committee of twenty-one may make the proper provision for this supervision.

Camp Highlands, A Recreation Camp for Boys

EMPHASIS is being placed today on the fact that men and women in cities live under stress and strain which wears them nervously and physically producing various asthenias. Psychologists point to a return to more simpler ways of living in order to mitigate the evils of the present day system and are advocating the exercise of the more primitive brain areas, the larger muscles.

City children of the present day are not living the normal outdoor life that formerly in rural communities or small towns was possible. During the school year the boy is confined to the classroom a great part of the time. In summer the city holds little real recreation for him. To meet the needs of city boys who crave the chance to be freed from conventions and just be natural, Camp Highlands in northern Wisconsin was established. Here boys are given the opportunity to enjoy the sports their fathers enjoyed. They can camp, swim, row, paddle, play baseball, be with other boys. Dr. William J. Monilaw, medical director of the University School, University of Chicago, founded the camp in 1904.

A good camp comes nearer to furnishing a boy with a normal natural life than any other agent. Here he enjoys the companionship of boys and men; he learns to live by doing; he develops a strong and efficient body and a ready resourceful mind. He lives close to nature and delights in simplicity and freedom from convention.

In order that each boy be given an opportunity to compete with others his own age and strength, the camp is divided into three groups, senior, junior, and midget. These groups are again divided into teams so that boys of the same group are pitted against each other. Every boy is a member of a team and participation in at least a part of every game is compulsory.

In keeping with the spirit of freedom, the camp has few rules, the ones in force pertaining in most part to health and safety. Camp activities are managed by committees composed of three seniors, two juniors, and one midget who are elected by the boys during camp assemblies. Two or more counselors usually act on the committees.

The order of the camp depends on the boys and much of the work is done by the boys themselves. They take turns waiting on table. Tents must be in perfect order by inspection time with the bed well made, floor swept, and all personal belongings in place. The clubhouse, boathouse, tennis courts, playhouse, and boats are cleaned daily and are inspected by the Officer of the Day.

Although much of the time is taken up with athletics and other activities,

The boys sleep in lodges and tents, five boys and a counselor in each.

Two swimming piers are maintained, one for the experienced swimmers in deep water and one on a shallow beach for beginners.

time is allowed the boys especially on Saturdays and Sundays to do as they please,—to develop initiative.

The health of the camp is guarded by the provision of a well rounded and well prepared diet, by a reasonable amount of play and athletics, by a limited time spent in the water, by open air sleeping and living, and by immediate attention by the camp physician in case of illness or accident. Besides the physician, the camp employs a nurse full time. The boys sleep in tents and lodges, five boys and a counselor to each. The tents of the three divisions are separated, all the seniors being together, the juniors, and the midgets each in its own group.

Equipment of the camp includes a large athletic field, a small play field, and five tennis courts. Two swimming piers are maintained, one in deep water for the experienced swimmers and one in shallow water with sloping sandy beach for the younger boys.

Situated on thirty acres of timbered lake front which it owns and occupying many other acres leased from the state, the camp is attractively situated. Other equipment of the camp includes a large two-story clubhouse, a kitchen and two dining rooms, bakery, ice-house, and cold-storage house, laundry, septic-tank toilet system, eleven large lodges, an infirmary with adequate medical equipment. The camp also raises its own vegetables; the boys care for the garden.

The urge for adventure, for following trails far inland is given outlet in the canoe trips up the various streams through northern Wisconsin and across the line into Michigan. With broad, safe canoes, two boys and a counselor to each, camp equipment and food enough for several days, a party of canoes sets out. The trip takes them into wild and unsettled territory. Frequently deer come down to the water to drink. Shut in by an unbroken forest wall, the silence of the lakes is disturbed only by the weird call of the loon.

Camping and fishing trips to nearby lakes are also planned for the younger boys. Camp is made, tents pitched, meals cooked over a camp fire, balsam-bough beds prepared. The boys sometimes walk on these trips and at times cover twenty or thirty miles before returning to camp. Fishing is another sport enjoyed by the young campers. Aside from the natural sports enjoyed at camp and the athletic contests, occupations such as manual training and photography are provided for the boys. Tree and bird study clubs are formed with instructors in charge. In one season over one hundred varieties of birds have been seen and on the camp property twenty-six varieties of trees were discovered.

Target practice is another pastime at the camp. The boys are taught to handle a gun properly, to shoot in good form, and to care for the gun when through shooting. The regulation "one gun, one boy, and one counselor," provides for safety.

The camp usually has a band as well as a quartette or glee club. Discussion clubs to talk over live topics of the day are also formed.

The staff of the camp is composed of mature counselors, one to every five boys. Most of the men are high school or college teachers or men in the upper years of their college course. As most of the men return from year to year the personnel is an experienced one.

A parent's camp is maintained near the boys camp to accommodate visiting parents. Stay is limited to a day or two. The parent's camp serves also as a home for the families of married counselors.

From its own point of view
the human race should have
with respect to its follies and sins
a "pay-as-you-enter" system.
If the assessed punishment for each
offense
Were to be paid in advance
I fancy there would be fewer offenses T. K. H. in Chicago *Daily News*.

Target practice is a popular pastime. The boys are taught to handle a gun and to shoot in good form.

A Survey of French Nurses' Training Schools

By KATHERINE M. OLMSTEAD, R.N., Associate Director, Division of Nursing, League of Red Cross Societies, Geneva, Switzerland

ONE of the first visits I made in France was to see the nursing work being done by the American Commission for Devastated France which is under the direction of Mrs. Mary Breckenridge. An affiliation has been made with the Florence Nightingale Training School at Bordeaux, and many of these young well trained French nurses are now "carrying the bag" and doing excellent public health nursing work in the devastated regions.

Unless one has visited the area around Soissons, Reims, and the Aisne, one can scarcely appreciate the difficult, depressing work being so efficiently carried on by this small group of about twenty French, English and American nurses.

From the most wonderful green, fertile fields, filled with huge red poppies and bordered with poplars, one suddenly comes upon that section of France known as the devastated districts, a small portion of which still remains uncultivated and gives some idea of what large sections of the war-riddled fields were like at the close of the war. There are long stretches of ground where huge ragged holes and piles of stones and earth have been heaved up as if an earthquake had taken place. Much of it is covered with a mass of tangled, rusty, barbed wire, half hidden under mounds of earth. The occasional pile of gray stone and the bare stumps of trees indicate where some home or village had been. Some of the villages where the nurses are working seem from a distance like mere piles of stones and cement with here and there a part of a wall or section of a church still standing, but upon actually arriving in each village we find many people living there, some have been able to build up the walls and put new roofs on their houses, some are still living huddled in basements under piles of ruins, while others are living in dugouts left by the German soldiers, but all are working hard to reclaim land and raise crops. This task has been both tremendous and dangerous. A nurse in one little village said that out of the forty-six men who were alive to return to their homes, eleven had been killed by unexploded bombs while endeavoring to clean up their fields ready for ploughing. Accidents of this kind are still happening. Swimmers are being caught and drowned in the rivers which are filled with barbed wire. There seems no place to put the rusty tangled piles of wire and it often forms a gruesome looking hedge along the once beautiful roadways.

In the most devastated villages or in the shadow of the remains of huge cathedrals, everywhere one finds the results of the activities of the American Commission for Devastated France. Their small barracks are surrounded with children, men are hurrying away with books tucked under their arms and the women with a few cans of condensed milk or a layette for a new baby have contented, satisfied smiles on their faces.

Upon entering the barracks one finds a nurse busily engaged in weighing and measuring babies, advising mothers, and assisting the local French doctors whose return to these sections has often been made possible by the salaries offered by the Committee.

In another barrack a library is established and the worn looking books and the group of young people reading, especially on Sundays, testify that the libraries are appreciated. Classes in cookery, sewing, manual training, and the drilling of groups of boy scouts, make each barrack a real center of activitiy for health knowledge and recreation.

Some of the nurses have long distances to travel and have the use of a Ford car and a chauffeur. The chauffeurs are young women nearly all of whom are volunteering their time. They take the entire care of their cars and may be seen at certain hours each day at the central garages as they scramble out from under cars or hoods with clothes, faces, and hands black with grease and oil, but each with an independent air of one who keenly realizes that she is rendering a service well worth while. Some of the nurses in the larger towns ride bicycles. There is no lack of calls from doctors and patients, and the long visiting lists of each nurse and the number of visits made daily testify that her service is valuable and appreciated.

Undoubtedly critics of French nursing problems are correct who say the Bordeaux School for nurses is most excellent and that it is the only school in France which is graduating proficient nurses of an intelligent type with an all-round efficient training for nursing service. That these nurses are exceptionally efficient and are in great demand was recently proved by Mrs. Mary Breckenridge, director, American Commission for Devastated France, who, desiring to employ as

In the face of ruin and devastation France has realized as never before the necessity for training its women as nurses in times of peace as well as war.

The school for nurses being conducted by the Societe de Secours aux Blesses Militaires was started twenty-two years ago to train volunteer nurses for the Red Cross

public health nurses as many of these well trained French nurses as possible, sent questionnaires to all graduates of the school. When the answers had been received from almost all, it was found that, with but one or two exceptions, the graduates of this school were holding high and important positions to whom even the unusually high salaries offered by the committee and the interesting work made no appeal.

Not Subsidiary to Hospital

Under the law of January 10, 1849, the Public Hospitals of Paris were separated from the church authorities and placed under the control of the newly organized Board of Charities. The problem of training and supplying nurses, not nuns, for the city hospitals was immense, and apparently a period of nursing decline resulted. In 1907 a central school for nurses was opened in the vast grounds of the Saltpêtrière which also contains the Hospital for the Insane and the Home for the Aged.

The most surprising part of this school, L'Ecole des Infirmières de l'Assistance Publique, is the fact that its sole object was and still is to prepare women to undertake nursing as a profession. The city of Paris, evidently as early as 1907, realized a public responsibility for providing this type of training for French women, and built and equipped a school with most remarkable foresight and with all the care and knowledge which usually attends the development of universities and colleges, but to my knowledge has seldom, if ever before, been applied to a school for nurses. Even in America where we are tremendously proud of our advance in nursing education, we have never been able to develop a school for nurses which is not subsidiary to the hospital. Our schools exist too much in order to serve the hospitals, not primarily to educate nurses. We have, however, long realized that the future of our nursing education depends upon a change in the existing system. A start has been made in securing central schools for nurses where at least a part of the theoretical training of the students from various hospitals is given in a central educational institution. This system has recently been started in two or three American cities and is considered a most advanced step, even though the hospitals sending the pupils still depend upon student service for the care of their patients. We were, therefore, quite surprised to find in Paris a central school existing as an educational institution solely for the purpose of training nurses.

The normal duration of studies is two years but pupils whose professional instruction is considered insufficient at the end of the second year are authorized to continue at the school until satisfactory examinations for the certificates have been passed.

The matron, her assistant and five monitresses of the school, devote their entire time to the conducting of the school and helping the student nurses with their studies. The more advanced students are assigned to give a series of class lectures and demonstrations. The monitress who conducted us through the school explained that this was most valuable experience as the school hoped to train in this way efficient head nurses and instructors for all the hospital wards where their students were receiving instruction. The French with whom we talked seemed to realize fully that, while the school, its buildings, its theoretical plan of training were most excellent, its weakness was in the low character of nursing work done in the wards of the hospitals where the actual bedside nursing was taught.

After visiting several of these hospitals, we realized why so much of the practical work was given at the school and why we were told frequently that the school hoped eventually to have its own graduates in charge of all wards. One could not help but be greatly impressed with the tremendous problem which the directors of the school are facing, and evidently much wisdom, judgment and foresight have been put into the developing of this plan for training professional nurses for France. While the general plan of the educational system seemed to us almost ideal, the weakness is of actual administration:

Weakness of French System

First, the lack of good bedside nursing instruction, the teaching of finer technique which develops good careful nurses is entirely lacking. That this weakness is realized to some extent was manifested by the desire to get their recent graduates in charge of the wards, but even this change will not greatly improve the condition, as even they have not had the advantage of good instruction in nursing technique and have no idea what good bedside nursing care is. The second weakness was the lack of any educational requirements for entrance which results in a lowering of the intellectual status of the students entering and keeps young French women of ability and refinement from entering nursing. Without educational requirements nursing in France is placed on a plane where physical brawn is more important than intellectual ability, a plane deserted by the profession in America thirty years ago, because of its inefficiency.

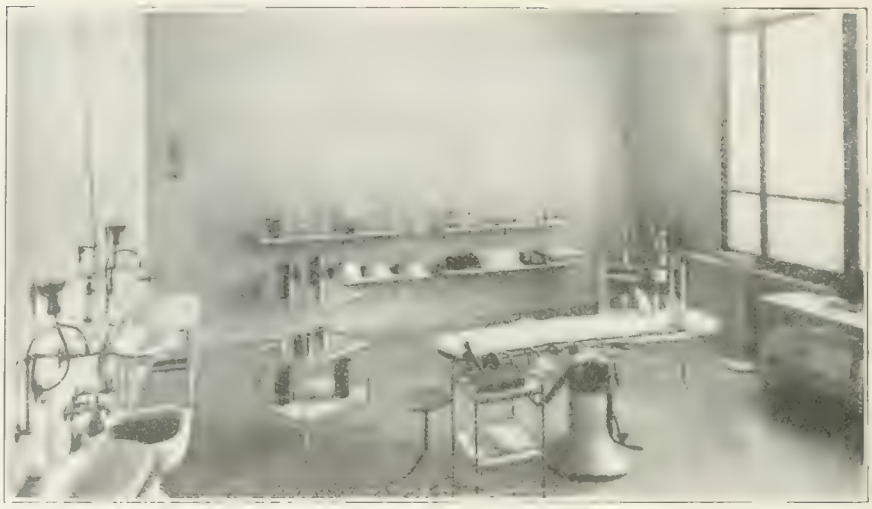
No particular desire seemed to exist concerning educational requirements; no one seemed to realize that the absolute foundation of any advance in nursing rests on the ability to secure properly prepared and educated material for the schools and hospital wards, and that teachers and leaders must be educated above the mass, in order to teach.

It seemed a great pity to us that some one or another of the Franco-American association working for better health and better care of the sick in France could not in some way get behind a school so efficiently organized and started by the French themselves, helping them to bolster up the two weaknesses which constantly debilitate nursing in France, first, by providing properly prepared instructors in bedside nursing until the school has its own supply and, secondly, by conducting a recruiting campaign of educational character which would advance nursing in France in the public mind to the height of a profession, thereby making it possible for women of intelligence to enter it. Most unfortunately, however, as Sir Napier Burnett recently said, Associations wishing to help France too often "build a machine and expect the spirit to get into it instead of using an existing machine and putting the spirit into it."

It is the usual thing to find in visiting the various activities started in Europe by outside countries the small well run unit revolving around itself and not carrying its methods or its improvements beyond its own walls.

The school for nurses being conducted by the Société Française de Secours aux Blessés Militaires was started twenty-two years ago for the purpose of training volunteer nurses for the Red Cross service. Ten years ago it was enlarged and remodeled,

Mlle. L. Geniry, directrice of the Hôpital Ecole de Société de Secours aux Blessés Militaires.



Operating room of the same hospital. Nurses in this school are of a refined, intelligent type. Very few go into nursing as a profession.

and since the war it has been painted and repaired, so that when we visited the school we thought it was a new building.

The nurses all seemed to be of the refined intelligent type and were most enthusiastic and interested in their work. Many of the fifty students now in training are taking the full two years' course to become either public health nurses, usually with some one of the tuberculosis clinics started by the Rockefeller Foundation or volunteer nurses in case of another need for Red Cross nursing service. Some few, but apparently not very many, go into nursing as a profession from this school.

S. B. M. Conducts 70 Schools

The S. B. M. is conducting about seventy of these training schools throughout France where women enter, taking a simple or a superior course lasting from five months to two years according to the use they wish to make of the knowledge acquired. Much encouragement seems to be given for young women to take the full course, and the living and working conditions are made so attractive and pleasant that undoubtedly many remain. Many graduates of this school are doing excellent although isolated bits of public health nursing in France. One volunteer nurse was doing excellent school nursing in a public school as a demonstration in hopes that the city of Paris would later support and develop this type of work. We were surprised and pleased at the breadth of the social work and the knowledge and skill she showed in the detection of physical defects.

The most noticeable things about this school were the really intelligent method of training used and the preparation and capability of the instructors and directrice of the school, the enthusiasm, intellect, and refinement of the students, and the general feeling that things were being well done and carefully done because the nurses loved to do it that way, not because they had to.

Bedside nursing was being taught in the school in quite an efficient manner but owing to the very small number of beds and the limitation of service, the actual bedside nursing experience obtained by the students is too meagre to allow of sufficient practice and the result is that the students are not trained bedside nurses. They seem quite well prepared, however, for specialized kinds of medical social service work by reason of large outpatient departments and public health and social experience available, and if the bedside nursing technique taught could be strengthened and made more comprehensive, an excellent group of public health nurses would be available.

We were very much interested to hear that L'Ecole de Puericulture de la Faculte de Medecine de Paris had received 500,000 francs from the Junior Red Cross of America on condition of their raising a similar amount in France. The school is only one year and three months old and is now conducted in a series of barracks. They hope to put up a permanent building later on. Its purpose was not to treat sick children but to keep well children healthy. Over two thousand babies were being cared for through this station.

Nurses enter this school from the Red Cross hospital schools for a three months' course. Another course of one year's duration is given to which

only graduate nurses are eligible and for which a diploma from the University of Paris is given.

We were interested in the physical culture work being done at the Association des Dames Françaises. When we first entered the building we saw many little children running around in attractive gray and white Roman costumes and, upon inquiry, we found the class in physical culture was being conducted in the building, owing to the bad weather. A very capable looking director was in charge of this work. A large outpatient department is run in connection with the school and the association also conducts a summer camp where 500 children are cared for each year.

The school for the training of nurses was a very well equipped, clean building. Twenty students were in training and the length of the course evidently varies with the type of work which the graduates wish to do. from five months to two years being required.

The outpatient department and the operating room service seemed well developed giving a fair training to the students, but here again the bedside nursing service was meagre.

Home for War Orphans

We were anxious to see how France was caring for war orphans so Mademoiselle de Haussonville took us to the Orphelinat de la Cantoria where we found about forty boys being cared for by Monsieur Jules Meunier, a musician. A large old house had been given over to the orphans. The school seemed to be run on the self government plan and the boys were extremely well behaved, happy, contented, and very much interested in the music and the large garden which they were caring for. They were poorly clad, the place was meagrely furnished, but a splendid spirit existed, the older boys evidently sharing in the care and teaching of the younger children.

Miss Crowell of the Rockefeller Foundation for the Prevention of Tuberculosis in France arranged most interesting trips and made it possible for us to visit about eight of the tuberculosis dispensaries started by the Foundation some of which had already been turned over to the French.

The dispensaries are all admirably and most completely equipped, each with a laboratory, a dental room, general examining room, large waiting rooms and room for records, and complete radiographic service.

The record system is the same in all the clinics and seemed most excellent, being very complete. The history cards of the entire family are kept in one envelope and different colored cards are used to signify children, stage of disease, etc.

We were very much impressed with the type and appearance of the French women in charge of the various clinics. They were most interested, intelligent, and capable, and were undoubtedly doing very good tuberculosis dispensary work. The clinics were well cared for, the records neat and full, and the patients carefully looked after and efficiently handled. We noticed the nurses doing many thoughtful things to make them more comfortable during the examination which showed good training and a high degree of personal intelligence and interest.

The social work of the Health Visitors, as they are called, seemed excellent and thorough. We were impressed favorably by the apparently good clinic and social work they are doing.

The above accounts are mostly concerned with the interesting and well carried out activities which we saw in Paris. We visited several other hospitals where the buildings were splendidly equipped for the care of patients, but nursing technique was entirely lacking, or so poorly done it was quite too horrible to describe.

We saw many small but very excellent pieces of public health work being done by the French themselves, in all of which we were impressed with the apparent farsightedness and the great care for details and thoroughness with which they were being developed.

We saw much of the very worst nursing and some few bits of the best nursing we have ever seen. We saw some excellent plans for the training of nurses, each lacking, however, one or two essentials which prevent a production of truly efficient well-trained nurses. We felt that while there was undoubtedly much to criticise in the nursing situation in France, there existed a few small and perhaps greatly overshadowed pieces of nursing work which we might well praise and which we hope will in time develop to such an extent that the general nursing service will be greatly improved.

We could not help but be impressed with the fact that many of the hospitals were not even partially filled, whole wards were frequently empty, but the outpatient departments were well equipped and were always crowded. Much of this may be due to the very poor nursing and the consequent dislike by the people for hospital care.

We decided that nursing as nursing was not disliked by the best type of French women, but that nursing as a vocation other than that connected with dispensaries or social service work was looked down upon and not understood as necessary for public welfare. We felt that volunteers are receiving a far better training than professional nurses and that many of these volunteers are extremely interested in doing various types of public health and social nursing, and are doing it extremely well.

The various lines of public health nursing, if stimulated properly, would and could undoubtedly cause these schools for volunteers to change into schools for public health nurses, and eventually France would have a group of well trained, capable women in the nursing profession, who could gradually tear down tradition and over-balance the great number of poorly trained ignorant women now so typical of France's professional nursing staff.

Predominating Defects in the Pre-School Age

The examinations of 1,061 prospective entrants into the public schools of New York City, made in their special study of the physical and mental condition of children of the pre-school age, corroborates earlier experience as regards the need of intensive correction of remediable physical defects among children of pre-school age. The children were mainly between five and six years of age. Only 33.3 per cent were found normal; 66.7 per cent had physical defects. Of the latter group, 25.2 per cent were children who had defective teeth as the only defect found; the remainder had one or more physical handicaps with or without teeth defects. The proportion of abnormalities was about the same for both sexes.

The predominating defects discovered, outside of teeth, were hypertrophied tonsils, 26.3 per cent; defective nasal breathing, 23.1 per cent; and malnutrition, 19.2 per cent. The incidence of each of these defects is greater among the children of pre-school age than among school children. Findings of this character forcefully urge the addition of an important unit to the basis of child health supervision; with the correction of such defects the first step in preventive medicine will have been taken.

Boy-Building Is Business of Camp Roosevelt

By MAJOR F. L. BEALS, Commandant, Chicago, Ill.

IF THE boys of America could spend a few weeks each summer in an out-door camp, the health of the nation at large would be vastly improved, and the pitfalls of leisure which now beset American boys and provide one of the baffling problems of society would be at least partly eliminated. If recreation is necessary for men and women, how much more necessary it is for the growing boy penned up for the greater part of the year in the school-room and partially denied the inalienable privilege of boy-hood,—play. The desire to provide the boys of the whole United States with a great summer playground actuated the founding of Camp Roosevelt. Peter A. Mortenson, Superintendent of Chicago public schools, approved so thoroughly of the plan as I outlined it to him that he gave his unqualified support to the project and made the camp an auxiliary of the Chicago summer school system.

The Camp Roosevelt Association has been fortunate in securing a tract of about two hundred and fifty acres, near LaPorte, Ind., upon which had been erected and in use for several years the buildings and equipment of a boys' school, including a gymnasium, mess hall seating one thousand, kitchens, electric power plant, deep well, modern sewage system, large hospital, classroom buildings, bungalows, dormitories, and recreation rooms. Included and surrounded by the tract is Silver Lake, about eighty acres in extent, with sandy beaches and diving platform. Large fields provide for tentage, sports of all kinds, and parade ground. The ground is rolling, well wooded and drained, and the surrounding country affords opportunity for hikes in every direction. With the beckoning pine woods, the alluring waters of beautiful Silver Lake, the camp site offers splendid facilities for the vacation pastimes that boys love.

It is restful just to visit Camp Roosevelt for a day, but to have the privilege of living there during one of the camp periods and to share in all of the fun of the camp and camp life is a prospect that might make even the satisfied individual crowned with the success of middle life anxious to turn back the clock a decade or two in order to join the boys in their play.

Camp Roosevelt, however, was not intended entirely as a play camp. An important work is going on, interwoven in the play, the physical training and the school course, that of boy building. Camp Roosevelt aims to build better boys, mentally and morally, as well as physically. It aims to provide not merely an ordinary summer's diversion for the boy, but a real agency for character building on a solid foundation. One of the first essentials toward elevating the character in its formative stage is to bring the boy out in the open, next to nature, living under the stars and breathing the pure, fresh air. With that as a background, the work of boy-building can be done in earnest.

Varied Activities of Camp

The steps which must be taken to bring about the final results are many and varied. With a program of physical exercises, drill, guard duty, athletics, each different phase of character building can be awakened to life. The physical activities build up the strength and virility of the boy. Guard duty and military drill instil those attributes of precision, alertness, and cleanliness which make for a keener, more intelligent manhood. Contact with hundreds of boys, each one trying to live up to the high standards set by the men under whose leadership he is placed, brings out self-confidence and overcomes self-consciousness, which in later life is one of the greatest business requisites. This is vastly important in the correct training of the boy.

The life of the boys is a life of simplicity and wholesome environment. The boys are quartered in large pyramidal army tents, without flooring, and well ventilated. Army cots and blankets are also supplied. The boys bring their own clothing and toilet articles, all of which are inspected by the company officers at least once a week. In this connection, it might be said that the chief insistence in the matter of equipment is the simplicity of arrangements. Elaborate bedding, superfluous blankets, excess toilet facilities, and all other unnecessary impediments of camp life are eliminated.

Because of this freedom from fold-de-rol, the cost of the camp to the boy is very small. This boy-building project would not fulfill the purpose for which it was intended were it to cater to but a select few. In order to make it easily accessible to boys from all walks and stations of life, it has been placed on a philanthropic basis. This does not mean that it is a charitable institution, but the expense is mainly borne by public-spirited business men of Chicago. Mr. Angus S. Hibbard, former vice-president and general manager of the Bell Telephone Company, is chairman of the Camp Roosevelt Association, which handles all financial matters.

Under the direction of Major Shields of the American Red Cross, national headquarters, every boy in camp is given a course in first aid instruction.

Sandy beaches surrounding Silver Lake afford excellent bathing facilities. The prone-pressure method of resuscitation is part of the first aid training the boys receive.

The boys themselves pay such a very nominal fee that it is within reach of even the penniless boy who can easily earn the needed sum by a few weeks of hard work after school hours.

One of the major benefits of the camp is democracy encouraged by the military life and discipline. The favored boy and the under-privileged lad have the same favors and the same privileges. The khaki uniform makes all boys equal, and every youngster stands forth on his own merits.

The health of every boy in camp is carefully safeguarded. A large splendidly equipped hospital is maintained by the First Aid Chapter of the American Red Cross of Chicago under the direct supervision of Dr. H. W. Gentles. The National Red Cross organization of Washington, D. C., details Major M. J. Shields as the senior surgeon. Under his direction are three physicians and two nurses, who, in addition to watching over the general health and sanitation of the camp, teach the boys how to apply first aid and emergency measures. Every boy in camp is obliged to take a course in Red Cross instruction. Those who realize the magnitude of this instruction in first aid alone can appreciate the wholesome influence upon the community of this one branch of activity at the camp.

The general health rules which are fully observed preclude any serious difficulties. Sunburn and blistered feet are practically the most dangerous troubles brought to the attention of the medical staff. Frequent foot inspection is held to prevent any serious foot trouble or infection. A thoroughly up-to-date dental dispensary is maintained by representatives of the Public Service Committee of the Chicago Dental Society, Dr. Dan U. Cameron being the inspiration behind this unique move. The teeth of the boys are carefully examined, many defects corrected, and cavities filled. Toothbrush drill is one of the daily activities of the camp.

One other point, and one which has a distinct bearing on the health of the camp, is the matter of morale. The healthy camp must have a healthy moral tone, and this is again particularly true with reference to a camp for boys. For this purpose, the Y. M. C. A. maintains a "Y" hut and a corps of secretaries whose province is the general comfort and well-being of all of the boys in camp. Moving pictures, music, speakers, entertainments, books, stationery, laundry service, and the like, are all helpful forms of service supplied by the "Y" secretaries.

The camp aims to live up to the standards of rugged manhood exemplified by the man for whom it was named. It teaches the boy to be democratic, to have community spirit, to develop individuality. Every boy is the stronger for having spent a few weeks at Camp Roosevelt and the gain of the city and state is commensurate. The camp gives many boys their first taste of real out-door life.

Camp Roosevelt is open to any healthy, clean American boy twelve years of age and over. The season is divided into two periods of three weeks each. A boy may attend either one or both of these periods. The headquarters for the camp is at the Chicago Board of Education, 460 South State Street. In the interests of building better boys, it would seem that all who become acquainted with the Camp Roosevelt idea should interest themselves in it, for it bespeaks for the future of our country a better citizenship.

General health and sanitation of the camp is carefully guarded as is that of the men in the service. Physical examinations are made of every boy in camp

Adv page 17

Calcium and Experimental Rickets

The effects of low calcium content in a diet fed to rats, which contains a sufficient supply of fat soluble A, and has an approximately normal content of phosphate, is the development of a pathological condition of the bone which has certain fundamental resemblances to human rickets. In a series of experiments conducted by McCollum, Simmonds, Shipley and Park of the Johns Hopkins University and reported in the *American Journal of Hygiene* of July, 1921, it was discovered that this ricket-like condition of the skeleton does not develop if the delciency in calcium is compensated for by the addition to the diet of calcium carbonate or if the animal is allowed to receive cod liver oil. Administration of cod liver oil is followed by the healing of the lesion formed by the calcium deficiency. Butter fat, even in liberal amounts, fails to prevent injury due to calcium deficiency. These results suggest the possibility that a dietary essentially distinct from fat-soluble A may exist; this substance being present in butter fat in small amounts, but abundant in cod liver oil.

American Children in the Tropics

A study has recently been made of the problems and difficulties of rearing children in the tropics, where the climatic conditions are marked by great heat and humidity where diseases peculiar to the tropics are prevalent; where the mortality among Chinese infants and children is high, and smallpox is deadly and malaria is universal. Malaria if not fatal, leaves its victims more or less impaired and the milk supply is entirely unsatisfactory and nutritional disturbances cause many deaths. In spite of these unfavorable climatic conditions some sixteen children born to American missionaries in China are alive and healthy today.

The missionary, before he goes out into the field, is required to pass a physical examination. He has no latent diseases and is in good condition. As a rule there is a physician in each of the mission stations and the intelligent co-operation of mothers helps greatly in environmental as well as dietary conditions. The hereditary and environmental factors then, are as satisfactory as possible under the circumstances, and medical advice and attention is available.

The economic and industrial expansion of the United States is requiring that more and more men and women take their families to the tropics, so that the problem of rearing children under such conditions are of necessary interest. The author, who writes of conditions in China in the *Journal of the American Medical Association* of June 11 concludes that healthy American children can be reared in the tropics and that there is no need to hesitate because of climatic conditions if attention is given to housing facilities; ceaseless vigilance and co-operation with the physician concerning dietary and sanitary matters on the part of the mother, immediate medical facilities, and sufficient changes from the heat into a cooler climate. The problem of childbearing makes the responsibility of the mother particularly important through the nursing period, especially if there is difficulty of feeding.

Japan Looks to the Future

THE Japanese Government is making efforts to improve the physical development of the rising generation. The daily physical exercises required of the children in public schools are far more exacting than anything of the kind in America. Bodily ventilation and sunlight are doing their dual corrective work for these children.

The problem of the children is urgent in Japan as in other countries, and the people are becoming aroused to a new sense of responsibility for their care. Measures are being considered for the correction of any weakness due to racial or other habits, according to the Japan *Advertiser*, and sanitary and health bulletins are being used for educational propaganda.

In his studies on ventilation and efficiency Leonard Hill commends the Japanese for their slightly built dwellings heated in cold weather only by charcoal braziers for warming the hands. Clothes and exercise rather than excess artificial heat are depended on to keep the body warm. This is in sharp contrast to the practice of Europeans and Americans during the last century or so, of building draughtless houses and securing inside by artificial heating a climate, tropical in temperature, and parchingly arid. Instead of the body being kept warm naturally by the stimulation of cool air, exciting muscular exercise and glandular activity and so enhancing combustion of food, it is kept warm by the blanketing effect of warm, stagnant air, so that sedentary occupations may be carried on, and amusements of rest taken with a minimum of open air exercise. It is in the impulsion to activity and the raising of metabolism that open air life owes its beneficial effect.

Western Newspaper Union.

The theory of bodily ventilation finds favor in Japan. A new department in Japanese school practice is the open air school in which children wear the minimum of clothing.

Ad... page 1s

Why the Arch Preserver Shoe *Preserves* Foot Health

THREE things explain why the Arch Preserver Shoe preserves foot health.

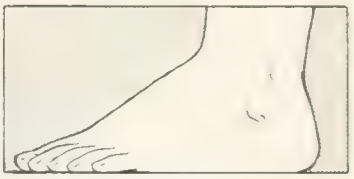
First, the lasts are designed so that the inside of the shoe will be **exactly** like the foot. The design takes into consideration the fact that in the foot there is a **transverse** as well as a lengthwise arch; also that the foot was planned to walk on a flat surface.

Second, the construction of the Arch Preserver Shoe is such as to provide the full length walking base Nature planned. The foot in an Arch Preserver Shoe is supported **exactly** as if it were bare and flat on the floor. This is due to the concealed built-in arch bridge. It gives firm support at all three of the weight contact points, the heel, the outside and the ball.

Third, the Arch Preserver Shoe is fitted **from heel to ball,** thus insuring the placing of the foot in the shoe exactly as the last was placed.

These three things enable you to understand why a woman wearing the Arch Preserver Shoe enjoys "barefoot" comfort at all times. The built-in arch makes it possible to have this comfort and at the same time good style shoes.

The results which so many thousands of women de clare are "miraculous" are only logical, and due to the fact that these women have, for the first time, given their feet correct support, in properly designed shoes, correctly fitted. Write for booklet 54 on foot health.



Nature plans that the foot rest on heel, ball and outside arch.

Civilization demands that heel and arch be raised.

The Arch Preserver Shoe with its built-in Arch satisfies both Civilization and Nature.

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ARCH PRESERVER SHOE
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This trade mark appears on the sole and lining of all Arch Preserver Shoes!

The Atmosphere and Man

THE Division of Biology and Agriculture of the National Research Council has come to the conclusion that the study of the effects of the atmosphere ought to stand on a par with the study of the effects of nutrition and of bacteria and other parasitic causes of disease. It believes that these three environmental conditions include practically all of the environmental as opposed to the hereditary causes of disease. Inasmuch as atmospheric influences have been studied far less than those of food and parasites, the National Research Council has appointed a Committee on the Atmosphere and Man. The object of this Committee is to study all sorts of atmospheric influences including the effects of climate and weather, acclimatization, the effect of tropical conditions upon resistance to disease, the relation of clothing and ventilation to health and efficiency, and especially the specific effect of all sorts of combinations of atmospheric conditions upon the various organs and physical functions and upon persons of various ages, races, sexes, occupations. Detailed observations will be conducted over a period of twenty-five years in Detroit and in New York City.

Up to the present three sub-committees have been organized, namely, on the Atmosphere and Mortality, on the Industrial Effects of the Atmosphere, and on Experiments. The work of the Sub-Committee on Mortality is already under way with the cooperation of the New York Department of Health, the New York Life Insurance Company, the Metropolitan Life Insurance Company, and the Board of Health of Detroit. The Sub-Committee on Industrial Effects has received promises of cooperation from a number of factories. The Subcommittee on Experiments is cooperating with the United States Public Health Service, the United States Bureau of Mines, and the American Society of Heating and Ventilating Engineers. As yet the Committee is not ready to announce further plans. It is especially desirous of entering into intimate relations with all agencies that are engaged in studying allied subjects for the purpose of correlating and extending such studies.

The membership of the Committee and Subcommittee is as follows:

Committee on the Atmosphere and Man.—Ellsworth Huntington, chairman, Yale University, New Haven, Conn.; Louis I. Dublin, Metropolitan Life Insurance Company, New York City; J. Arthur Harris, Section for Experimental Evolution, Cold Spring Harbor, N. Y.; Yandell Henderson, Yale University, New Haven, Conn.; Arthur Hunter, New York Life Insurance Company, New York City; Burton E. Livingston, Johns Hopkins University, Baltimore, Md.; Charles F. Marvin, United States Weather Bureau, Washington, D. C.; Raymond Pearl, Johns Hopkins University, Baltimore, Md.; Leonard Hill, Medical Research Committee, London, England; Frederick L. Hoffman, Prudential Life Insurance Company, Newark, N. J.; William H. Howell, Johns Hopkins University, Baltimore, Md.; Beardsley Ruml, Carnegie Corporation, New York City; J. W. Schereschewsky, United States Public Health Service, Washington, D. C.; Frankwood E. Williams, National Committee for Mental Hygiene, New York City.

Subcommittee on the Industrial Effects of the Atmosphere.—Ellsworth Huntington, chairman, Yale University, New Haven, Conn.; R. H. Lansburgh, University of Pennsylvania, Philadelphia, Pa.; F. S. Lee, Columbia University, New York City; Leonard Outhwaite, Personnel Research Federation, New York City; A. H. Ryan, Scovill Manufacturing Company, Waterbury, Conn.; S. S. Sayers, United States Bureau of Mines, Washington, D. C.; L. R. Thompson, United States Public Health Service, Washington, D. C.

Subcommittee on Experiments.—William H. Howell, chairman, Johns Hopkins University, Baltimore, Md.; Yandell Henderson, Yale University, New Haven, Conn.; E. C. Schneider, Wesleyan University, Middletown, Conn.

Subcommittee on the Atmosphere and Mortality.—Ellsworth Huntington, chairman, Yale University, New Haven, Conn.; Louis I. Dublin, Metropolitan Life Insurance Company, New York City; J. Arthur Harris, Station for Experimental Evolution, Cold Spring Harbor, N. Y.; Frederick L. Hoffman, Prudential Life Insurance Company, Newark, N. J.; Arthur Hunter, New York Life Insurance Company, New York City; G. T. Palmer, Board of Health, Detroit, Mich.; Raymond Pearl, Johns Hopkins University, Baltimore, Md.

Methodist Hospital Conference

THE Fourth Annual Meeting of the National Methodist Hospitals and Homes Association was held in Chicago, February 15 and 16. The association is made up of representatives from 72 hospitals, 43 children's homes, 35 homes for the aged, 5 working girls' homes, 1 young men's home, and 1 home for retired ministers, all managed by the church. Doctors, nurses, and superintendents of the institutions were in attendance.

That the hospital is being reorganized as a workshop with facilities representing the last word in scientific medicine and workers representing the best in training and skill was the statement of Dr. Willard C. Stoner, Director of Medicine at St. Luke's Hospital, Cleveland, Ohio, who read a paper on "The Hospital Problem in Relation to Modern Medicine." The establishment of hospital facilities in rural communities would be the rational solution of medical practice in these districts, he thinks.

Dr. Stoner's emphasis on the importance of amplifying hospital facilities, of making the hospital a complete workshop in order that medicine may be marketed to the public at a price which is not prohibitive, as contrasted with the private cooperative clinic established on a commercial basis, was based on a general survey of hospital organizations such as represents the organization of St. Luke's Hospital, Cleveland, Ohio.

The great need of medical missionaries who will go into rural sections and build up the health of the people was stressed by Rev. C. M. McConnell of Chicago who gave comparisons of the health of the 12,000,000 rural school children and the 12,000,000 who attend city schools, demonstrating that those in the city are taken care of much better than the school children of the country. He also urged the need of the visiting nurse to visit the homes and teach people how to live and what to eat, thereby avoiding the common diseases. An emergency hospital in country districts with nurses and modern equipment, such as is being built at Pittman Center, Tenn., will solve in some measure the rural problem.

In discussing nurse problems, Dr. C. S. Woods, Indianapolis, Ind., urged

Metatarsalgia and Callouses Caused by Weakened Transverse Arch

This condition is recognized by depression of the Transverse Arch anteriorly or at the base of the Metatarsal bones. The dome-like arching is obliterated and painful callosities or corns form over the depressed Metatarsal heads. The foot broadens, the toes become dorsal flexed. Bunions appear at the First and Fifth Metatarso-Phalangeal articulations. Digital nerves become impinged and severe cramp-like pains are experienced through the toes. This is described by Whitman as Morton's Toe.

These conditions, Doctor, are quickly relieved and permanently corrected by the use of

Dr Scholl's
Corrective Foot Appliances

These appliances are especially designed and constructed to restore the Anterior Arch, remove abnormal pressure and permit full freedom of motion to the entire foot. Different types to meet all emergencies.

Sold and fitted by leading shoe dealers in every community who have been instructed in Anatomy of the foot and how to properly apply correctives to the foot and shoe.

Important pamphlet, *"Foot Weakness and Correction for the Physician,"* mailed upon request.

THE SCHOLL MFG. CO., 213 West Schiller Street, Chicago

NEW YORK TORONTO LONDON

Doctors, nurses and superintendents of Methodist hospitals and homes who met in their fourth annual convention February 15-16 in Chicago.

the nurse's helper as a partial solution for the shortage of nurses. Such a helper would do some of the routine work, giving the nurse more time for her studies and practical experience in nursing which is to fit her for later service.

The following officers were elected: President, E. S. Gilmore, Superintendent, Wesley Memorial Hospital, Chicago; First Vice President, and Chairman of Publicity Committee, S. W. Robinson, Executive Secretary, Methodist Homes for Children, Williamsville, N. Y.; Second Vice-President and Chairman of Finance Committee, J. A. Diekmann, Superintendent, Bethesda Deaconess Hospital Association, Cincinnati; Third Vice-President and Chairman of Nurses Training Committee, Miss Blanche M. Fuller, Superintendent, Methodist Hospital, Omaha, Neb.; Fourth Vice-President and Chairman of Committee on Homes, W. H. Underwood, Superintendent, Crowell Memorial Home for Aged, Blair, Neb.; Treasurer, Mrs. W. S. Phillips, Superintendent, Methodist Home for Aged: Secretary, W. J. Jordan, Executive Secretary, Asbury Deaconness Hospital, Minneapolis, Minn.

School of Hygiene Endowed

THE gift of six million dollars by the Rockefeller Foundation to the Johns Hopkins University School of Hygiene and Public Health will provide a permanent endowment for the School and will make possible the erection of the new building for the school on a site adjacent to the Johns Hopkins Medical School and Hospital.

Since the opening of the school in 1918, the Foundation has furnished funds for its maintenance from year to year, but with the acceptance of the present gift the trustees of the university assume full responsibility for the future needs of the school.

This is the second school of public health that the Rockefeller Foundation has materially aided recently. Its gift of two and a quarter million to the Harvard University School of Public Health last summer made possible the reorganization of an institution already established with other funds.

The special province of the school of public health is the improvement of personal and public hygiene, the warding off of epidemics, the constant battle against bacilli which not only destroy human life but also cause later chronic ailments.

In preventing disease other sciences than medical are required. In promoting public health, the sanitary engineer, the laboratory scientist, the inspector of foods, the epidemiologist, the industrial physician, the administrator, the educator, and the public health nurse are called upon as well as the medical practitioner. Schools of public health give instruction to physicians and others who engage in these various health activities. By research and field demonstrations they constantly add to the knowledge of the science of hygiene and promote its wider practice.

The new type of institution places emphasis upon the development of preventive medicine and upon the training of health officers. Under the direction of Dr. William H. Welch the School at Johns Hopkins has made substantial progress in the four years since its establishment. Twenty-seven states and ten foreign countries are now represented in the student body numbering 131. The faculty of the school comprises scientists in the fields of bacteriology and immunology, sanitary engineering, chemical hygiene, physiological hygiene, medical zoölogy, epidemiology, vital statistics, and public health administration.

Regular courses of study lead to the degrees of Doctor of Public Health, Doctor of Science in Hygiene, and Bachelor of Science in Hygiene. A certificate in public health is given to those completing certain special courses. Short courses or institutes are provided for health workers in service who cannot be absent from their positions for more than a few weeks at a time. Last year thirty-six health officers from eight states took these short intensive courses.

Hotel Furnishes Scientific Diet to Guests

The Waldorf-Astoria Hotel, New York City, is pioneering in the field of furnishing scientific diets to guests suffering from nutritional disorders. Seven menus have been prepared by the hotel dietitian on the advice of a medical consultant to serve in a general way the needs of guests. The menus include:

No. 1, high cellulose diet for constipation, atomic and intestinal toxemia; No. 2, high cellulose, low calory to reduce weight; No. 3, low sugar and starch, high protein and cellulose for poor sugar tolerance; No. 4, low cellulose, low condiments for acute ulcer cases; No. 5, low cellulose, high calory, high fat—a diet of simple, nutritious, non-irritating foods; No. 6, low purin for arterio-sclerosis, advanced age, and angina pectoris; No. 7, low purin, for rheumatism and neuritis.

The No. 5 menu is the diet for children. For convalescence, malnutrition, colitis, and underweight.

The menus are not supposed to fit individual cases and warning is printed on the back of each enjoining the advice of a physician. This is the first attempt of a hotel to furnish a scientific diet service.

How the Right Shoes Increased Her Sales

A true story with a lesson for all men and women

"MISS GREEN, you and eight other girls out of seven hundred have shown increased sales during the last three months. All the others show losses. Why have you been able to increase your sales?"

"Who are the eight girls?" asked the young woman.

The president of the store read the names. The girl seemed happy to answer:

"Shoes—Cantilever Shoes. I got them first. Later I took each of those girls, in turn, to the Cantilever Shop. In Cantilevers, you see, our minds are off our feet. The business gets all our attention. We don't feel cross, cranky or tired. I suppose that's why our sales are good."

That afternoon the president of the big store went into the Cantilever Shop and asked a salesman to explain the features of Cantilever Shoes.

The Cantilever salesman took a shoe and bent the sole at the shank, showing how the shoe conforms to the natural foot, even to having a flexible arch like the foot. He said, "The arch of the foot should flex with every step, according to nature, yet ordinary shoes are made rigid by a concealed metal shank-piece that forbids free movement of the muscles. There is no rigid shank in Cantilevers. The 'waist' is designed to hug the instep, the shoe fits and supports the arch restfully. The flexibility allows the arch muscles free play and this, together with the natural lines of the shoe, permits perfect circulation.

"It is important to allow the foot muscles to exercise, to keep well and strong. The forepart of a Cantilever Shoe is shaped to look well, while allowing the toes to lie in their normal position. Cantilever heels are moderately high—high enough to be smart, without throwing the posture of the body out of balance as exaggerated heels do, causing unnatural pressure and strain on the nerves and the internal organs. By wearing Cantilever Shoes a woman avoids headaches, irritability and nervousness. She is brighter and happier."

"The subject is of great importance to the business woman who is required to stand during the greater part of the working period. The tired feeling often complained of at the end of the day's work may be attributed to ill-fitting shoes."
—Dr. Wilmer Krusen, head of the Department of Public Health of Philadelphia

"Pain is a great foe to good looks. Comfort works just the other way. If you are comfortable, you are apt to be pleasant, and pleasantness and prettiness are often synonymous terms. Eliminate as many of your worries as you conveniently can, and your 'best face' will appear."
Grace Margaret Gould on "Good Looks" in Women's Home Companion

"Working women are the worst offenders. It is the girls who are on their feet most who persist in wearing the highest heels. Sensible women have learned that they can increase their efficiency and even earn bigger salaries by wearing shoes built for real comfort and health."
—Dr. Evangeline W. Young of Boston

If no dealer listed at the right is near you, the Manufacturers, MORSE & BURT CO., No. 1 Carlton Avenue, Brooklyn, N. Y., will mail you the Cantilever Shoe Booklet and the address of a nearby dealer.

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Mckeesport—Wm. F. Sullivan
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Modesto—Level Best Shoe Store
Montgomery—Capital Shoe Co.
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Muncie—Meyer's, 11 So. Walnut St.
Newark—807 Broad St., Opp. City Hall
New Britain—Swan Bros.
New Haven—153 Court St. (2d floor)
New York—[illegible] West 34th St.
Norfolk—Agnes & Brenner
Oklahoma City—The Boot Shop
Omaha—1205 Howard St.
Passaic—Kroll's [illegible] Lexington Ave
Pawtucket—Evans & Young
Philadelphia—1300 Walnut St.
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Rochester—145 East Ave.
Rockford—D. J. Stewart & Co.
Saginaw—Goecher Brater Co.
St. Louis—316 Arcade Bldg. (Opp. P.O.)
Salt Lake City—Walker Bros. Co.
San Antonio—Guarantee Shoe Co.
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San Francisco—Pantages Bldg. (Arcade)
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Glands and Personality

THE human organism as a going concern has received less attention from scientists than has the consideration of isolated organs or functions and confusion has resulted from the fact that the findings brought out in detached and over-elaborated studies of mind, of metabolism, or of physical processes, though interesting and illuminative, fail to dovetail when all reports are in. Notwithstanding apparent contradictions, however, we have been prone to accept the objective findings of the laboratory and even to a marked degree to credit the speculative constructions of human behavior as devised in the field of psychology in the hope that finally a complete and sufficient explanation of man as an entity would evolve. We have been inclined to accept these isolated facts as truth and rather to discredit more complete "systems" because the more symmetrical stories of human origin and trend have one by one soon come into disrepute. Dualism theoretically explained the diverse mental phenomena, but now pure science will have none of it, and Spencer's one way evolution with inevitable improvement of types has been entirely discredited.

Fascinating possibilities, however, are suggested by the thesis of Louis Berman in "The Glands Regulating Personality." In this book an elaborate but precise category is created for every personality; he takes care of every trend, accounts for exceptions, and aberrations, provides for control, and opens a wide vista of further development. The explanation of constancy as well as diversity of types he finds in chemical formulae of glandular stimulations and inhibitions, the whole process of life being under the control of the hierarchy of the hormones. Specific organization is constant under the domination of a given gland. "There is an endocrine aspect to every activity, normal and abnormal, internal process and its external expression." The physiology of natural ability becomes, according to Berman, fundamentally more important than mental tests. Personnel may be chosen on this basis. Financiers and musicians are pituitary types; thyroid domination produces superabundant energy; and adrenal types are unfit for sustained effort. Moral codes become subject to remedy through the sanitarium treatment of the thymocentric, it being as futile to expect these individuals to improve on admonition any more than we can expect a typhoid patient to obey a request to "please do not develop a temperature of 99 degrees in the morning." According to this theory an extension of Kimball's wholesale feeding of iodin to avert thyroid deficiency is in effect an effort to raise the general mental level of the community and man can conceivably govern his future development through the control of his endocrine constitution. But the matter is not so simple. Glandular imbalance is not subject to precise regulation, nor is its nature and degree at present to be reduced to a mathematic index. The first organic reaction to environment was undoubtedly a chemical response, and chemical it must remain, but even now another school of thought is busy explaining everything on the basis of the electrical nature of man. We always make a mental reservation when a single explanation is offered for human complexity. The book of Berman, however, is a distinct contribution. He has been an indefatigable reader and synthesizes practically everything that is sound in physiological research. His ideas tumble out in such profusion as often to confuse his style—even to sacrifice grammatical construction—but the whole work is stimulating and of intense interest.

The Macmillan Company, New York, 1921.

Monitor Ventilation System

THE advantages of monitor ventilation over plenum or other systems are reported by Walter A. Griffin, M.D., Sharon, Mass., in the *Boston Medical and Surgical Journal*. There is nothing new about monitor ventilation, the Indian wigwam built in the shape of a cone with its apex open for the escape of smoke being one of its oldest examples. Nearly all railway coaches are ventilated by this system as are barns of the old-fashioned cupola type.

The monitor system is rarely used, however, in halls, theaters, schools, and hospitals, and little seems to be known of its possibilities in these connections. In fact this system as used in the Children's ward of the Sharon Sanatorium has excited much comment from physicians and laymen alike.

The fundamental requirement of ventilation is that it should keep body heat and humidity below a certain level so that good ventilation means practically good heat elimination. It is a matter of common knowledge that vitiated air tends to rise, and in case of fire instructions are to keep near the ground floor to avoid suffocation.

In Massachusetts the law provides only for plenum ventilation or some modification of this system. The statute requires that there shall be outlets near the floor which shall insure the removal of two and one-half cubic feet of air per minute for each foot of the room; that there shall be "inlets" for pure air equal to the amount removed and at such height from the floor as to "insure proper circulation."

If the room is to be used as a school, the air may be supplied by pressure through the floor and the outlet may be through grills in the ceiling. The efficacy of the plenum system was tested at the Massachusetts Hospital school in Canton some years ago by the superintendent, Dr. John E. Fish. Certain rooms thoroughly equipped for plenum ventilation were filled with a dense smudge. The room was cleared of smoke only after thirty minutes.

Dr. Fish also experimented with a square room by removing all the windows. He found that the smudge was driven back against the further wall where it remained. To remove the vitiated air best, Dr. Fish found that raising the ceiling to a peak like the ceiling in the attic of a house was most efficacious. With this system, he found that with the monitor windows open the dense smudge passed out of the room in a few seconds. The monitor system removed all odors and made the air inside seemingly as pure as out-door air.

The monitor system presents many architectural problems when a building of more than one story is concerned. However, these are not insurmountable. Another disadvantage is that a little more heat is required. Still another objection sometimes offered is that it would hardly be practical in certain noisy or dirty places in the city.

The advantages of the system are that it is easily regulated, it causes no perceptible drafts, and it keeps the air as pure as out-door air.

Sherman's Polyvalent Vaccines

A more adequate and rapid immunity can be established with polyvalent vaccines than from an infection itself. SHERMAN'S POLYVALENT VACCINES rapidly stimulate the metabolism and defense of the body with a resultant prompt recovery in general acute infections.

Given early, bacterial vaccines almost invariably cut short the common pyogenic infections of the skin, mucosa joints and tissues;

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Even when used as a last desperate expedient, they often reverse unfavorable prognosis.

The immunizing powers of stock vaccines are demonstrated by the prophylactic efficiency of typhoid vaccine. Bacterins made from selected, vigorous organisms are far higher immuno-producers than autovaccines prepared from feeble, degenerated organisms sometimes found in the patient's own specimens. Especially in acute cases, the PROMPT injection of a stock bacterin is decidedly preferable to the DELAYED injection of an autogenous one. The place for autovaccines is in chronic infections which fail to clear up under stock bacterins due to the probable presence of some unusual bacterium.

Advanced inflammatory processes due to only one class of bacteria are rare, mixed infections being the rule. Therefore, COMBINED VACCINES, containing all strains likely to be present, give the best assurances of success; an unneeded variety of the bacterin is harmless and in no way weakens therapeutic response.

Thus the favorite invaders of the nose and throat are the pneumococcus, the streptococcus, the staphylococcus and the micrococcus catarrhalis, calling for Sherman's No 40, and in chronic cases—when there is a foul odor produced by the Friedlander bacillus — Sherman's No. 36. In visceral infections, due chiefly to the colon bacillus with the pus cocci, Sherman's No. 35 is appropriate. In Neisser infections, if these organisms are not already allied with the gonococcus, the imminence of their entrance is so great that the rational combination is Sherman's No 49.

When, particularly in grave cases, valuable time may be lost in securing the variety of vaccine especially recommended, it is always advisable to use the vaccine at hand which contains the predominant organism of the disease to be combatted.

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"DAILY USERS OF VACCINES USE SHERMAN'S"

Osler on Modern Medicine

THERE is a deep fascination in the study of the history of science and in acquaintance with the lives of the pioneering spirits who have advanced its boundaries, often at such tragic personal cost. We can find, however, much more than a romantic pleasure in such study. In the words of Hippocrates, with which Sir William Osler begins "The Evolution of Modern Medicine," "we ought not to reject the ancient art, as if it were not, and had not been properly founded, because it did not attain accuracy in all things, but rather, since it is capable of reaching to the greatest exactitude by reasoning, to receive it and admire its discoveries, made from a state of great ignorance, and as having been well and properly made, and not from chance." The careful analysis of the growth of knowledge, the appraisement of each advance, and the consideration of its limitations, furnish invaluable lessons in the technique of reasoning and of experimentation so that the student who delves into the history of his field will gain not only an inspiration to renewed effort but an admirable training for the prosecution of his tasks.

Dr. Harrison describes Osler as "the best-balanced, best-equipped, most sagacious, and most lovable of all modern physicians." There has certainly been, for a generation, no representative of the medical profession better fitted to prepare a brief and popular survey of its history. Deeply-grounded in the sources, ripe in scholarship, judicious, temperate, and charitable, and withal full of the sacred fire of enthusiasm for science and for the men of science, he has conferred in this posthumous work a boon upon every student of medicine or its allied fields.

The lectures delivered eight years ago under the Silliman lectureship at Yale were in Sir William's hands for proof correction when the war interrupted all such pleasureable activities, and they have been finally prepared for the press with affectionate care by Dr. Garrison and other friends since the author's death. They constitute in his own words "an aeroplane flight over the progress of medicine through the ages," with chapters on primitive medicine, on Greek medicine, on mediaeval medicine, on the Renaissance, and the Rise of Anatomy and Physiology, on the Rise and Development of Modern Medicine, and on The Rise of Preventive Medicine.

The specialist on the history of medicine will, of course, find little that is new in a book of somewhat over 200 pages on so vast a theme. He will, however, be delighted with flashes of insight, with exquisitely apt characterization, and with the just balance held throughout. Who but Osler could compact as much of the history of two hundred years into one sentence as the following contains: "The sixteenth and seventeenth centuries did three things in medicine—shattered authority, laid the foundation of an accurate knowledge of the structure of the human body, and demonstrated how its functions should be studied intelligently—with which advances, as illustrating this period, may be associated the names of Paracelsus, Vesalius and Harvey."

It is particularly to the student and to the younger man in medicine that this book will come as an inspiration and a delight. To catch a glimpse of the lives and the work of Hippocrates and Galen and Avicenna, of the three pioneers of the Renaissance whose names have just been mentioned, of Morgagni and Hunter, and Laennec, of Pasteur, Koch and Lister, of Reed and Gorgas, pictured with Osler's clarity and charm is to enter as a younger brother into the great company of the torchbearers of science and to gain new power for the task of carrying onward the light they kindled.—C.-E. A. Winslow.

Yale University Press, 1921.

The Principles of Therapeutics

This book, by Oliver T. Osborne, will do much to fill the need for a clear, rational and efficient textbook of treatment which the young practitioner so earnestly needs. The contents, classification and arrangement are excellent. Especially praiseworthy are the discussions of electrotherapy and hydrotherapy, instructions as to the technic of inhalations, irrigations, etc. The discussion of topics, such as medical laws and ethics, is likewise unusually valuable. The book maintaining the decimal system of dosage throughout will unquestionably help to educate after at first confusing the under-graduates, still being trained in the grain and ounce system.

To the reviewer a jarring note in the unusually even tenor of the book is found in the author's too frequent use of words such as "nonsensical," "inexcusable," "absurd," "ridiculous," in discussing the opinions of others. This is, perhaps, a minor criticism in a major volume.

W. B. Saunders Company, 1921.

Mouth Is Gateway to Health

N. Y. County Red Cross.

Prevention on a large scale is practiced by the New York County Chapter, American Red Cross, in its program for cleaning the teeth of New York school children. The chapter maintains four dental clinics in public schools and three others in Red Cross Child Health Stations. Children in Public School No. 168, Manhattan, are shown here receiving their daily teeth cleaning. The School of Oral Hygiene of Columbia University cooperates with the Red Cross Health Service in this work.

Science approves food conservation

SCIENTISTS and economists can no longer fail to take account of the important place vegetable fats have assumed in our national dietary. Production of animal fats has not kept pace with the demands of a growing population, and vegetable fats have been drawn upon for certain limited uses to supply the deficiency.

Vegetable fats have established a place from which they cannot be displaced without serious disturbance to the food supply. Vegetable fats are here to stay and the problem for the scientist now is to study their uses.

Combined with skimmed milk, vegetable fat is made to serve the highly economical purpose of saving a food product which is otherwise lost to the human dietary. Thus enriched, skimmed milk is an excellent cooking liquid, adding nutritive value to foods cooked with it and helping to balance the diet.

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American Apprenticeship and Industrial Education

The decay of the apprenticeship system and the development of industrial education on broader lines has come in large part in the failure of the workshops to provide a proper industrial training for its younger employees. Paul H. Douglas in a study of "American Apprenticeship and Industrial Education" traces the use and decay of the apprenticeship system, the problem of juvenile labor and the educational requirements of modern industry, the modern substitutes for apprenticeship such as manual training, trade and industrial schools, and the general social and economic aspects of the schools.

Apprenticeship is in reality a combination of education and industry. The apprentice is taught the trade by one engaged at the time in the industry and when this process ceases the system becomes merely routine. Since the shop no longer trains its workers, other agencies must be created and utilized to assume the responsibility.

Columbia University, Longmans, Green & Co., Agents, New York, 1921.

Physics and Fiction

A remarkably instructive and entertaining book, "*Physic and Fiction*," written by Sir Squire Sprigge, the editor of the *Lancet*, has been published recently. The book deals with several phases of medicine and is, in fact, a collection of essays on doctors and the relationship of the medical profession to the art of fiction, etc. The first chapter, "Medical Priestcraft," points out that, although the profession is not now regarded with the reverence it once commanded, there never was a time when it demonstrated its efficiency so forcibly than at the present time.

Perhaps the most amusing chapter is that which is concerned with "Medicine in Fiction." Of course the author finds many misrepresentations of medical life in modern novels and the manner in which diseases are described is nearly always faulty and sometimes absolutely fake. He draws attention, for example, to the fact that the devoted nurse who saves and afterwards marries the hero is impossible in real life. "Nurses in hospitals have to do as they are told," he writes. "The devoted young woman who remains by a sufferer's pillow hour after hour and day after day till she wins a hand-to-hand fight with fate, and secures by her importunity the life of the patient, is a figment; for in the hospitals all nurses go to their meals and their beds at stated times."

Occasionally the novelist, however, is not only accurate in his description of diseases but has even anticipated the doctor. In Charles Reade's "Foul Play," one of the characters, a young woman, is dying from phthisis. Circumstances left her on a desert island where she has to sleep in a hastily constructed log-shelter and labor all day beneath the sky in accordance with the habits of brave castaways. She puts on weight, increases in strength, and utterly loses her tuberculous infection. This book was written in 1868 and at that time few save George Bodington, the first to advocate the open-air treatment of tuberculosis, would have believed the episode possible. Bodington's book was written in 1840 but the teachings were coldly received and by 1868 were forgotten.

The chapter dealing with public developments of medicine is particularly good and surveys the progress of preventive medicine and the work of the Ministry of Health in the way that they should be regarded. It is pointed out that general practice in Great Britain as hitherto understood is largely in the melting pot. It is further pointed out that if the public will cooperate with the medical profession—and it must be educated to do this—the future of preventive medicine and of medical practitioners is bright.

The book is written in a manner entertaining and instructive. The author's views, though somewhat detached, are never dogmatic, they abound in discernment and foresight; they are tolerant and philosophical, expressed in language well chosen and of a high literary style. The work should appeal to American medical readers who desire to know how the profession stands in Great Britain. Moreover, while it provides a fund of information, it is never dull.

Hodder & Stoughton, London, 1922.

Even though the "nuisance taxes" yield the Government $50,000,000 a year, there is general agreement that the return does not justify the injury done the good nature of the American people.

Economy in Mass Treatment

By Our London Correspondent

The advantages of the large tuberculosis sanatoriums as weighed against those of the small hospitals were discussed in a paper read by Dr. E. Lindhagen at the second meeting of the Scandinavian Tuberculosis Society at Numela Sanatorium in Finland, report of which is published in *Hygiea*.

From his broad experience, Dr. Lindhagen believes that big institutions, well built and well staffed, are economically of more value and afford the patient more expert treatment. Dr. Lindhagen in his paper pictures the fate of patients tucked away in small twenty-five bed hospitals under the supervision of a nonresident general practitioner without any special knowledge of the modern treatment of tuberculosis. The physician must often be away for days at a time and when an epidemic is raging in the district, the last patients to be attended to would probably be the inmates of such a small hospital.

As compared with such a hypothetical case, Dr. Lindhagen believes a large institution with a staff of specialists to be far more satisfactory. The treatment of pulmonary tuberculosis of late years has become a highly specialized, frequently operative science; even the older methods of dieting, graduated exercise, and the like require skill and experience on the part of the medical staff.

Dr. Lindhagen does not believe in frittering away money on small cheap shanties as is often the case nowadays. He believes that in the near future the policy of makeshift, ramshackle, jerry-building will be condemned as expensively cheap; small and isolated hospitals will have to be scrapped; and the capital expended on them written off wholesale. It would be far better, he says, to build large permanent, up-to-date institutions.

Dr. Lindhagen has made out a good case for the large as compared with the small institution but the latter's vigorous growth in Norway suggests that more can be said on its behalf than is conceded in his paper. In fact the tendency of the present day is to build somewhat flimsy buildings, having plenty of fresh air in which to house consumptives rather than to spend a great deal of money on solid buildings.

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Kotex is a sanitary pad that does away with many embarrassments. It is easy to buy without saying "sanitary pads" by simply asking for "Kotex." It is sold in department, drygoods and drug stores. Everywhere. It comes in a blue box which has no printing except the name "Kotex."

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FROM THE FIELD

The National Research Council has published in its Bulletin of December 1921 a list with relevant information of the research laboratories in industrial establishments of the United States. This was originally compiled by Alfred D. Flynn but has been revised and enlarged by Ruth Cobb of the Information Service. In addition to the alphabetical list of laboratories which carries first hand information of the work, there is a subject classification.

The advantages of a doctor's information exchange as operative in Lafayette, Ind., are set forth in the *Ohio State Medical Journal*. The exchange is available to all physicians in the city and affords a permanent telephone service.

The Massachusetts Compulsory Education law requires "that every child between seven and fourteen, every child under sixteen who does not meet the requirements for the completion of the sixth grade of the public schools of the town in which he resides . . . shall attend a public day school . . . or some other day school approved by the committee, during the entire time the schools are in session."

The Eyesight Conservation Council has issued "Eye Sight Conservation" Bulletin No. 1 which comprises that part of the study of "Waste in Industry," conducted under the auspices of the Federated American Engineering Societies which relates to eye conservation. The importance of the subject, corrective measures for substandard vision, and the health factors involved are fully discussed in the pamphlet.

A psychiatric clinic to be attached to the Juvenile Court at St. Louis is being advocated by a number of St. Louis physicians and social workers. Dr. M. A. Bliss of St. Louis, president of the Missouri Society of Mental Hygiene, has announced that the National Society of Mental Hygiene will cooperate in its establishment. The Rockefeller Foundation will provide funds to send a psychiatrist, a psychologist, and social workers should the clinic be established.

Stanley Cobb, M.D., Assistant Professor of Neuropathology, Harvard Medical School, has published in *The Journal of Industrial Hygiene* "A Report on the Brief Neuropsychiatric Examination of 1,141 Students." This examination is given to each man entering the Freshman class at Harvard University.

A clinic designed to bring children who are forced to earn their own living up to a higher standard of health and physical development has been established by a group of woman members of the First Unitarian Church, Baltimore. Dr. Lawson Wilkins of the Johns Hopkins Hospital held the preliminary clinic at the parish house. The clinic will be held every Friday morning. This is the first move of the kind in the state, and is being encouraged by members of the State Board of Labor and Statistics to which children must apply for permits to work.

Plans have been filed for the new home of the Hospital for Joint Diseases which is to occupy the block front on the east side of Madison between 123d and 124th streets, New York City. There will be two buildings, a seven story hospital, the estimated cost of which is $650,000, and a six story service building costing $250,000.

Michigan has organized a public health education committee composed of M. L. Burton, Ph.D., President of the University of Michigan, president, and Dr. Frederick C. Warnshuis, Grand Rapids, secretary. The object is to carry out with the cooperation of the Michigan State Medical Society and the University a general health program for the state. Membership on the committee includes: Dr. Andrew P. Biddle, president of the Detroit Board of Education; Dr. William J. Kay, Lapeer, president of the Michigan State Medical Society; Dr. William J. Dubois, Grand Rapids; Dr. John McLurg, Bay City, and all members of the State Medical Society. The university committee is composed of Dr. Hugh Cabot, dean of the Medical School, University of Michigan; Dr. Gotthelf Carl Hubert; Dr. John Sundwall, and Prof. W. D. Henderson.

Persons suffering from venereal diseases are prohibited by Federal law from migrating from their home state to another without first procuring from their local health officer a permit stating that their travel is not dangerous to public health. The law seeks to close every channel through which venereal disease may be spread. As a result of the request of the United States Public Health Service last spring the Attorney General instructed all United States attorneys to prosecute offenders rigorously. This resulted in the sentence of several violators to reformatories, thus stopping their disease-spreading activities.

With the discovery of "205 Bayer," a new drug made in Germany, great hopes are being held for the cure of the sleeping sickness caused by the tsetse fly in the Congo region, states Dr. E. R. Kellersberger in the New York *Times*. Dr. Kellersberger has been a member of the Luebo colony for five years.

George Dock, M.D., of St. Louis tells of a visit to the Palmer School of Chiropractics, Davenport, Iowa, in the *Journal of the American Medical Association*. The visit revealed no laboratories to speak of and a student body composed mainly of middlewesterners from the farm, barber shop, and hotel dining room. The article is reprinted in the *Journal of the Missouri State Medical Association*.

The Montclair Board of Health has extended the work of its laboratory to include the Wassermann reaction. This work will be under the direction of Helen G. Jacobs, B. S., who has recently been studying the technique of the test at the research laboratories of the New York City Health Department under the direction of Dr. William H. Park and Miss M. A. Wilson.

In an effort to provide adequate medical service for the middle class, some of the leading physicians in Kansas City have established a hospital inviting the public to become members of the association by paying a dollar a month each and receiving therefor such medical or surgical care as may be needed.

Japan's plan of inoculating dogs instead of people to prevent rabies might well be considered in America. Of 31,000 dogs inoculated not one case of rabies developed.

Thermolite Design Was Correct

It is interesting to note that leading phototherapists now endorse the use of therapeutic lamps reflecting PARALLEL RAYS and without a focal or "burning" point.

The greater therapeutic value of parallel rays has always been recognized in the design and construction of Thermolite heat and light applicators and this fact has undoubtedly influenced the adoption of this equipment as standard in many institutions.

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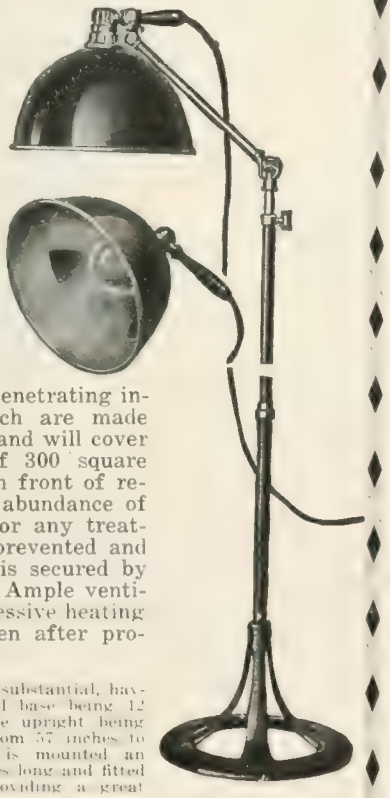

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Send for our Medical Booklet — Free

A useful factory inspection form is contained in the January 6 issue of *Public Health Reports* issued by the United States Public Health Service. The January 20 issue contains a study by Fritz B. Talbott, M.D., Boston, assisted by Miss Margaret E. Moriarty on "The Basal Metabolism of Infants Fed on Dry Milk Powder."

Dr. J. H. Florence has been appointed State Health Officer for Texas to succeed Dr. Manton M. Carrick, resigned. Dr. Florence is a native Texan and was educated at Baylor University. Dr. W. H. Beazley, Assistant State Health Officer, is also a native of Texas. He was educated at Louisville, Ky.

Health and nutrition certificates are awarded those Texas children of pre-school age who for four consecutive years have been given physical examinations by local physicians and dentists, according to the *Houston Chronicle*. The certificates are signed by the local health chairman and by a representative of the home economics division of the University of Texas. During the four years health records are kept for each child and the public health nurse of the community keeps in touch with the parents in an effort to correct any defects disclosed by the examinations. Examinations are now being held for the third year in about 25 towns.

Health service for negro women in industry is discussed in a report recently issued by the Woman's Bureau of the U. S. Department of Labor. Miss Emma L. Shields, a member of the staff of the Women's Bureau, in conjunction with the Division of Negro Economics in the Department of Labor, carried on the investigation.

Provisions for health service in the establishments visited varied from the best to the worst types. In 18 establishments, employing 2,502 negro women, adequate and sanitary first aid dispensaries were found under the supervision of trained nurses. Employers were unanimous in emphasizing the good results emanating from these arrangements. Not only could expert aid, quiet, and comfort be given the worker who had been taken ill or who had met with accident in the factory, but in many cases the influence and the advice of the nurse had an effect on the daily habits of the workers, both in the factory and in their homes, and was being reflected in better living. It may be remarked in passing that sympathy and understanding seemed to exist between negro nurses and the workers of their own race, giving these trained women a strong influence for good on the factory workers. . . .

In 132 establishments either there was no equipment for the treatment of illness and injuries, or there was a nominal first-aid cabinet containing one or two medicines to be administered indiscriminately as the panacea for any ill. Some managers seemed surprised when equipment for health service was mentioned. In many cases they replied that they had a standing agreement with a hospital for treatment of their accidents and for ambulance service at top speed. In many establishments managers had no health or accident records by which they might keep account of health conditions in their plants and ultimately reduce losses in labor caused by preventable illness or accident. The 18 establishments with proper health equipment showed that they realized the significance of this phase of factory management by keeping records of all sickness and accident cases.

Alcoholism and home-brewism was responsible for approximately one-third as many victims in Michigan in 1921 as was "good licker" in 1917, states the Michigan Department of Health. In 1917 a total of 255 deaths was credited to alcoholism; in 1921 there were 94.

The Committee of Fresh Air and Recreation of the Babies' Welfare Federation is attempting to draw up a set of uniform essential minimum requirements for admission. This is for the purpose of minimizing the danger of contagion and vermin to the children who are transported each summer from the tenements to the country by the various fresh air organizations. Cleanliness of body, head, and clothing are the standards the committee hopes to have adopted.

The Medical Society of the County of New York has issued a statement accusing chiropractors of flooding the country with propaganda to discredit all other means of treating diseases and to break down all health laws with which they come into conflict. Chiropractic pamphlets are distributed by a central bureau by the hundred thousands. The claims of its testimonials have been investigated by the *Journal* of the American Medical Association and found to be untrue, the Society further states.

More than 20,000 persons committed suicide in the United States in 1921 according to an estimate of the Save-A-Life League appearing in the New York *Times*.

The Surgeon-General has ordered modification of fumigation requirements for ships in the port of New Orleans. Ships which dock at rat-proof wharves must be fumigated only once every six months instead of three as heretofore. Ships that dock at the few wharves that are not rat-proofed must follow the old regulations.

A bill providing for the serving of breakfasts and luncheons at cost in the 600 elementary and high schools of the five boroughs of New York City was presented in the state legislature, February 15. Under the present system, the Board of Education is supplying luncheons at a maximum price of 10 cents in twenty-four of the schools where the percentage of malnutrition is highest.

Up to March 10, thirty-four states had signified their acceptance of the provisions of the Sheppard-Towner Act. In six states the acceptance was by act of the legislature and in the rest through the action of the governor, this being authorized by the law for a period extending until six months after the adjournment of the first regular session of the legislature following the passage of the act. In twenty-nine states the administration of the act will be in the Child Hygiene or Child Welfare Division of the State Agency of Health; in two States, New Mexico and Nebraska, in the State Department of Public Welfare, which includes the State Agency of Health; in Delaware, the Child Welfare Commission will administer it, and in Iowa and Colorado, the Department of Education. The plans now being developed by the states will provide for general educational activities through popular literature, reports of investigations, and surveys, with the ultimate aim of making actual conditions known and thus providing the basis for their correction.

Acute infectious jaundice is now epidemic in the United States for the twentieth time in seventy-two years, according to reports in the New York *Times*. The disease has appeared in practically every section of New York state and sixty-nine cases were reported at Yale University. The germ, the Leptospiraicterhaemorrhagia, is carried by rodents. Rat extermination and protection of food from rat contamination is advised by health authorities.

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The validity of the rules of the state department of public health for the control of typhoid carriers was upheld by the Supreme Court of Illinois in its recent decision in the case of Barmore v. Dr. John Dill Robertson, former Commissioner of Health of Chicago. The court held that the constitutional guarantee that no person shall be deprived of his liberty without due process of law was not intended to limit the exercise of the police power of the state such as the enforcement of quarantine regulations.

Lewis H. Carris, of Washington, D. C., has accepted the invitation of the National Committee for the Prevention of Blindness to become its field secretary. Until January 15, Mr. Carris was administrative head for the Federal Board for Vocational Education in charge of the administration of the Federal Vocational Educational Act and the Industrial (civilian) Rehabilitation Act.

The American Medical Association will hold its annual session at St. Louis, May 22 to 26. Dr. Louis H. Behrens, 3525 Pine Street, St. Louis, Mo., is chairman of the Committee on hotels.

The annual congress of the Royal Sanitary Institute will be held at Bournemouth, England, July 24 to 29 under the presidency of Major John Seely.

The new anti-tuberculosis act which makes state support available to private organizations instead of attempting to increase the number and scope of public institutions is considered by *The Survey* to be one of the most important of recent public health laws in Belgium. A new national association of private organizations to combat tuberculosis which has been formed will receive a state grant of several million francs.

A bill which has excited numerous protests has been presented in the French parliament providing for the extension of the health insurance operative in Alsace and Lorraine to the rest of the country. Compulsory and old age insurance was organized in Alsace-Lorraine when the province was part of the German Empire. Now that it has become part of its mother country again, it still maintains its well organized social insurance laws.

An International Congress for the protection of mothers and infants will be held in Paris, July 6 to 8, 1922. The conference is being called by the League to Combat Infant Mortality.

Senator Frederick M. Davenport of Oneida has introduced into the New York legislature a bill providing for the establishment in the state department of health a division of maternity, infancy, and child hygiene. The proposed bill carries an appropriation of $100,000. Legislative leaders have decided not to accept federal aid in maternity care as provided by the Shepherd-Towner Act as they consider it undue interference in state affairs by the federal government.

Chicago must have clean streets is the ultimatum of William Burkhardt, Deputy Commissioner of Public Works, recorded in the Chicago *Tribune*. Since the city council appropriated an additional $500,000 for waste disposal a month ago the number of loads of refuse hauled daily has jumped from an average of 1,000 to 3,700.

A Hospital Information Bureau has been established in the New York Academy of Medicine Annex, New York City, with Dr. E. H. Lewinski-Corwin, Executive Secretary of the Public Health Committee of the Academy of Medicine, as director. The purpose of the Bureau is to keep in touch with hospital work and progress in New York City, to prepare exhibits, maintain a library of hospital reports, and to promote uniformity in hospital reporting.

A number of physicians from the London School of Tropical Medicine will attend courses at the proposed Gorgas Memorial Institute of Tropical and Preventive Medicine at Panama, according to announcement made by Sir Patrick Manson, advisory member of the institute. Dr. Richard P. Strong, dean of the school of tropical medicine, Harvard University, who has accepted the post of scientific director, sailed April 1 for Panama to assume his new duties.

The Lying-in Hospital of New York City celebrated the 123d anniversary of its incorporation March 1. According to estimates the hospital has brought into the world over 131,000 babies, or enough to populate a city larger than Springfield, Mass.

Dr. A. D. Emmett of Detroit, Mich., presented a paper recently on "Some Newer Phases of Vitamin Studies," before the Chicago Medical Society. The medical profession should give more attention in the future to diet and nutritional factors in the treatment of patients. They should bear in mind that vitamins are only one factor to be considered and that proteins, mineral matter, calcium and phosphorus, as well as energy producing values should all be in the right proportion, Dr. Emmett stated.

The Red Cross Courier is presenting a series of articles by Anna M. Stanley on the technique of school nursing. Miss Stanley was formerly director of public health nursing of the Southwestern Division of the Red Cross, and has had much first hand experience as school nurse, supervisor of school nurses, and as a teacher.

The New York post office has established a dispensary for its employees on the fourth floor of the central office which will be in operation day and night. It will care for the 3,000 men and women employed there and also for those in the branch offices. Col. E. K. Sprague, head of the Hudson Street Hospital, will be in charge. The United States Public Health Service is supplying the equipment and will maintain the clinic.

The annual meeting of the Canadian Public Health Association will be held June 6 to 9 in St. John, New Brunswick. The annual meeting of the Canadian Association for the Prevention of Tuberculosis will be held in connection with the Canadian Public Health Association. The Canadian National Council for Combating Venereal Disease will also hold its annual meeting in St. John.

The New York State Commission to Examine Laws Relating to Child Welfare has opened offices with an Executive Secretary in charge at 137 East 22d Street, New York City. George A. Hall is executive secretary.

The address of Edwin O. Jordan, Professor of Hygiene and Bacteriology, University of Chicago, delivered before the second general session of the American Public Health Association in New York City on "The Relations of Bacteriology to the Public Health Movement since 1872" is published in *Medical Insurance and Health Conservation.*

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Immigrant Health and the Community

The problem of the immigrant as a cog in the political world and as a factor in social reorganization has received much attention but his health problems and difficulties have not been perhaps so greatly emphasized. Michael M. Davis, Jr., through the courtesy of the Carnegie Corporation of New York, has just published a study in the Americanization series entitled "Immigrant Health and the Community." The book is divided into five parts giving statistical and special problems, a discussion of American agencies and methods, and a program for health.

In some communities the immigrants have developed organizations for self help which are entirely independent of any American agency. Many of the Southeastern Europeans bring over with them ideas of cooperative associations which they continue in this country and although it may originally be started as a social, cultural, or political group, some scheme of sickness or death insurance is ordinarily included.

The problem of maternity care, the midwife and her extensive activities are discussed at some length. In the United States our knowledge of midwifery is limited, but from communities in which their work is regulated and supervised it would seem evident that at least they give as good care as any other which the mass of people can pay for on a business basis. Immigrant diets and American food also afford special immigrant problems.

The program for health is limited by economics, psychological, professional, and social factors. The average immigrant has insufficient income to meet the emergency of sickness and is limited not only by his own foolish ideas of sickness and its causes but an entire lack of understanding of the problem of the physician. Professionally, specialization and skill is required of physicians. To these there is success generally through hospitals and dispensaries. Socially some system must be worked out to give adequate service to all people of small means and little health knowledge, whether in the form of health insurance, the community organization of medical services, the development of health centers and service organizations, it is impossible to say. There are tasks for national and local organizations, standardizing and developing plans, stimulating various groups, and pushing the general standards on to a point more nearly commensurate with our national ideals.

Harper & Bros., New York, 1922.

Infantile Paralysis Treatment

There is probably no other man in this country who knows as much about treatment of infantile paralysis as does Professor Lovett. His book on "Treatment of Infantile Paralysis," may therefore be considered as the latest word on the subject.

The author believes in complete rest in the acute stage of the disease. He is opposed to all forms of massage and electrical treatment, up to the time all muscle pain has disappeared. He uses casts for the prevention of the deformity. After the acute stage is over, he advises muscle training.

Although some few men in the country differ from Dr. Lovett as to procedure, it is best for the general practitioner to follow his advice and method. A thorough reading of this book must be considered as essential to every one who comes in contact with patients suffering from infantile paralysis.

P. Blakiston's Son & Co., 1921.

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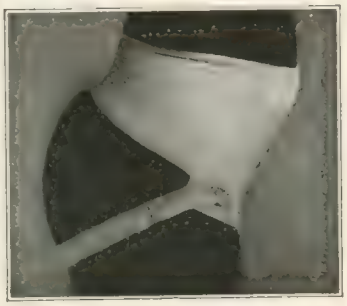

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Blankets should be soft and fluffy and contain a large proportion of wool as these are considered more comfortable and durable if given proper care than cotton. Wool or cotton batting comforts covered with cheesecloth and then with a pretty light weight material are very convenient for extra covering in severe weather and are warmer than the old fashioned quilts.

Smallpox Peddler Spreads Disease in Kansas

That vaccination is the greatest safeguard against the operations of the ignorant and criminally careless is pointed out by Dr. Frank G. Pedley, State Epidemiologist, in the *Bulletin* of the *Kansas State Board of Health*, in citing the case of a man who by ignoring his quarantine caused the spread of smallpox to three counties involving fourteen persons and resulting in four deaths.

The "smallpox peddler" first acted as nurse to a fellow member of a road gang who had become ill from black smallpox in Garnett, Anderson County, about October 15, 1921. Not caring for the solitude and isolatoin of the job, W— often went to town. Upon being warned that he was breaking the law and fearing arrest, he boarded a train one night and disappeared.

Two weeks later W— appeared in Iola, Allen County, and reported sick. His illness proved to be smallpox, he was isolated, and after ten days of fairly severe illness, feeling as well as ever, he decided to leave Iola and be married.

The wedding trip included a visit to Thayer, Neosho county, where he visited three families. This was about November 18. The first week of December smallpox broke out in the three families and the fourteen cases resulting can be traced directly to W—. His wife and mother-in-law also contracted the disease. All this time W— did not seem to realize his liability for their illness. He left the house where they were confined and mingled with well persons daily. As soon as it was discovered that the cases in the three counties could be traced to this one man, he was placed under arrest.

From W's ignorance and criminal carelessness at least fourteen cases of smallpox and four deaths, one of them his own mother, occurred. Many of the cases were terribly disfigured by the disease.

Leper Segregation Not the Best Method

That segregation of lepers in the Culion Leper Colony in the Philippine Islands has not proved wholly successful is the statement of Prof. José Albert in the *Journal* of the *Philippine Islands Medical Association* reviewed in the *Lancet*. The Culion Leper Colony was established fifteen years ago on a specially selected island possessing every modern convenience. Rosenau in the second and third editions of his "Preventive Medicine and Hygiene" stated that systematic segregation has reduced by 90 per cent the new admissions to this colony, and more recently Leonard Rogers has described it as a "huge success." Albert states that these statements are not in accord with facts.

Segregation alone, Albert maintains cannot stamp out leprosy. Improved hygienic and sanitary conditions which prevent contagion are more effective. Segregation is not based on the present knowledge of the contagiousness of leprosy, the writer declares. Intimate and prolonged association produces infection in a second individual in only about 5 per cent of the cases. Rational legislation should provide for the detection and isolation of lepers with open lesions and their segregation in appropriate hospitals.

Norway's system of no segregation is cited with approval by Albert. Lepers without ulceration are permitted to mingle with others. Physicians state that they have never seen infection by contagion from cases of this nature. The success of this method of control is seen, Albert points out, in the fact that in descendants of lepers who have emigrated from Norway to the United States, the disease has disappeared. Where rigid isolation is enforced, the cooperation of the people tends to be lost as in Hawaii and more recently in the Philippines.

The "Care of the Baby," a new and enlarged edition of a former publication of the same name, is contained in the recent number of the weekly Public Health Reports of the U. S. Public Health Service and is now being reprinted for general distribution.

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Health and Atmospheric Environment

The relation of the individual to active outdoor life has been confirmed by many and varied experiments. The Japanese have developed an artistic excellence in craftsmanship in slightly built dwellings, depending not on the cold comfort of charcoal braziers, but on clothing and exercise to keep themselves warm. On the other hand in the last century, the Europeans and Americans who have dwelt in a colder climate, have bent their efforts toward the building of draftless houses, secured by artificial heating both in summer and winter. The low cooling power of stagnant air, rooms of artificial heating by radiators depresses the metabolism to a low level. In place of the body being kept warm naturally by the stimulation of cool air exciting muscular exercise and glandular activity and so enhancing the combustion of food, it is kept warm by the blanketing effect of warm stagnant air, so that sedentary occupations, amusement, and rest can be carried on in warm comfort and a minimum of open-air muscular exercise be taken, according to the *International Journal of Public Health*, May-June, 1921.

The body was fashioned for procuring food by active exercise and upon this exercise depends the proper and vigorous function of the digestive, respiratory, and vascular organs. Consequent on this, too, is the vigor of the nervous system and the keen enjoyment of life.

The authors point out the importance of deep breathing excited by exercise. Exposure of the skin to the sun and wind has a very profound effect upon the health of the entire body. There is reason to think, perhaps, that the skin is a great seat of production of immunizing substances which protect it against infection. The monotonous life of over-warm, stagnant rooms is contrary to the changing conditions of the outdoors. There must be the constant re-adjustment of the individual to his environment. Exposure to cold winds may double the metabolism of a man sitting at rest. His natural inclination is not to sit still and feel chilled, but to be active and keep himself warm. It is this impulsion to activity and the raising of metabolism that makes open-air life so beneficial.

As a rule the body weight of well-nourished people can safely be reduced, but the experience of Germany during the war, and still more of Austria since that time, has "upheld the truism that in the absence of a proper food supply, all that has been written above about open air stimulating metabolism and efficiency is of no account. Cold is an enemy of the semi-starved; it is a stimulating friend of the well fed."

Chemical Analysis of Milk

The chemical composition of milk varies greatly, not only as to fat content, but also as to protein and carbohydrate. Such variations are due to several conditions such as time of milking, period of lactation, state of nutrition, and nature of nutrition of the animal. In rating the products of given dairies, the *Lancet* suggests that consideration be given to limits of variation of all constituents, with due care that the food of the herds provides a source of all three vitamines. Summer milk is a better anti-scorbutic than winter milk. The same holds for the fat-soluble A vitamine.

All three of the vitamines are derived from the food of the animal and are not produced by the animal. Further, there is no connection between chemical composition of milk and vitamine content. A milk of high fat content may be low in content of factor A. Milk from a cow on dry food does not contain C factor.

Tuberculosis Among Indians

Results of a study of the cause and extent of tuberculosis among the Nebraska Winnebago by Doctor Margaret W. Koenig appear in a report issued by the Nebraska Historical Society. This investigation was conducted with the cooperation of the Nebraska Tuberculosis Association and Department of Sociology of the University of Nebraska, and the field work was financed by a special grant from the National Tuberculosis Association.

More than one thousand Winebago are included in the study. The average annual birth rate for the past decade had been 34.4 per one thousand, while the mortality for the same period was 36.2 per one thousand.

Personal examination was made of over half the population and information was obtained concerning 237 cases of tuberculosis within the decade 1909 to 1919. Of this number 127 were deceased at the time of the study, representing an average annual mortality of 11.7 per one thousand as compared with the U. S. registration area rate of 1.4 per one thousand. The tuberculosis morbidity rate among the Winnebago is from three to six times as large during the age periods of five to twenty years, as compared with the population at large. Glandular tuberculosis comprised 15.6 per cent of the cases, but as practically no milk is used by the Winnebago the infection is probably not of bovine origin.

Factors responsible for this undue prevalence of tuberculosis among the Winnebago are the extremely bad home sanitation, ignorance of personal hygiene, harmful social customs including the use of stimulants such as peyote, and venereal infections.

The Housing Act in Holland gives financial support to public utility societies of workmen or of persons belonging to the middle classes who are desirous of building dwelling houses for their own use. The houses remain the property of the building associations. The State support consists of a loan to the amount of the total building cost at low interest and a further contribution if the cost is so high that the tenants cannot afford the consequent high rent. At the present time 60,000 dwellings are actually needed, the population of the Netherlands being about 6,800,000.

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The Physiology of Protein Metabolism

"The Physiology of Protein Metabolism," by E. P. Cathcart, M.D., is a revision of the preceding edition published in 1912 which is one of the series of monographs on biochemistry. No one who is interested in the subject and who has read the first edition can fail to appreciate the author's sincere effort in the critical collection of material and in rendering such an intricate problem exoteric.

Like the first edition, the new volume contains a full but undogmatic discussion of the various facts and theories on the physiology of protein metabolism published in current literature. The discussion in the new edition includes not only the investigations of Liebig, Voit, Pflüger Zuntz, Rubner, and their pupils, but those of the more recent workers, Lusk, Van Slyke, Folin, Osborne, Mendel, and many others.

Among the important additions to the new edition are the results of the investigations of Grafe, Underhill and Goldschmidt on the retention of ammonium nitrogen by the animal body and the experiments on the relation of the quality of proteins to protein requirements by Hopkins, Osborne and Mendel. The final chapter on the influence of carbohydrates and fats on protein metabolism is almost entirely new. Here the author summarizes the results of the investigations on the part played by carbohydrates both in vitro and in vivo and those on the influence of non-nitrogenous substances on the rate of the protein breakdown. He concludes that although there is some relation in the amounts of the various substances which can replace one another in a diet, we cannot logically refer to the replacements of the various food substances in terms of energy. The book closes with a bibliography of over eight hundred references covering a period of nearly a half century.

On the whole this is an unusually valuable book for all those who are interested in biochemistry.

Longmans, Green & Co., 1921.

Injuries and Diseases of the Bones and Joints

In reviewing a book, two questions should be uppermost in the mind of the reader. First, is there a definite need for such a book, and, second, how well does this particular book fill that need? It was with these two postulates in mind that the reviewer read and formulated his opinion of "Injuries and Diseases of the Bones and Joints," by Frederick H. Boetjer, M.D., and Charles A. Waters, M.D.

As to the first question, all surgeons will agree that there has been an urgent call for a book on x-ray diagnosis of the diseases and injuries of the bones and joints written in a straightforward simple manner which did not delve into ohms, watts, electrostatics, high tensions, and low tensions. There have been many books on x-ray technique and diagnosis written by roentgenologists for roentgenologists. There have also been inserted into all the latest text books on surgery chapters on x-ray diagnosis written by surgeons for surgeons. But Boetjer's and Waters' work offers the delightful combination of a book on the surgical conditions of bones and joints written for surgeons by excellent roentgenologists. Our first postulate is answered.

How well does the book fill the need? Boetjer and Waters take up their work evidently mindful of the fact that they are writing for surgeons and not x-ray technicians. They present their subject with a view of aiding in the diagnosis of plates. The text is admirably illustrated with 332 roentgenograms descriptive of the various lesions. No space is taken up with matters of technique, description of the tubes, or machines. Enumeration of some of the chapter headings will give a good idea of the structure of the book. For example, some of the chapter headings are: Normal Bones; Fracture of Upper Extremity; Congenital Dislocations; Bone Infections; Bone Tumors. Under these headings the common conditions are first described and then the rarer conditions are taken up. A word or two of caution as to prognosis and possible errors in diagnosis are inserted.

The reviewer feels that the book fills its need so well that every surgeon who has occasion to study x-ray plates will find Boetjer's and Waters' book of great assistance.

Paul B. Hoeber, New York, 1921.

Books Received

DISEASES OF THE EAR, NOSE & THROAT IN CHILDHOOD. By Douglas Guthrie, M.D., F.R.C.S., Cloth, 8vo, pp. 82, illustrated. A. & C. Black, Ltd., London, 1921.

INDUSTRIAL FATIGUE AND EFFICIENCY. By H. M. Vernon, M.A., M.D., Cloth, 8vo, pp. 254, E. P. Dutton & Co., New York, 1921.

CONFECTIONERS' RAW MATERIALS: Their Sources, Modes of Preparation, Chemical Composition, the Chief Impurities and Adulterations, Their More Important Uses and Other Points of Interest. By James Grant, J.P., M.Sc., Tech., F.I.C., F.C.S. Cloth, 8vo, pp. 161. Longmans, Green & Co., New York, 1921.

THE LIFE OF JACOB HENLE. By Victor Robinson, M.D. Board, 8vo, pp. 117. Medical Life Company, New York, 1921.

THE STAGES OF HUMAN LIFE. By J. Lionel Tayler, M.R.C.S. Cloth, 8vo, pp. 377. E. P. Dutton & Co., New York, 1921.

RHYTHYM, MUSIC AND EDUCATION. By Emile Jaques-Dalcroze. Cloth, 8vo, pp. 334. Putnam, New York, 1921.

THE EIGHTEENTH AMENDMENT and the part played by Organized Medicine. By Charles Taber Stout. Cloth, 8vo, pp. 216. Mitchell Kennerley, New York, 1921.

OUR SOCIAL HERITAGE. By Graham Wallas. Cloth, 8vo, pp. 242. Yale University Press, New Haven, 1921.

HEALTH EDUCATION and the NUTRITION CLASS. By Jean Lee Hunt, Buford J. Johnson, Ph.D., and Edith M. Lincoln, M.D. Cloth, 8vo, pp. 281. E. P. Dutton & Co., New York, 1921.

PUBLIC HEALTH SURVEYS. By Murray P. Horwood, with a foreword by William T. Sedgwick. Introduction by George C. Whipple. Cloth, 8vo, pp. 404. John Wiley & Sons, Inc., New York, 1921.

AIDS TO CHEMISTRY. By William Partridge, F.I.C., Joint Public Analyst for the County of Dorset. Lecturer in Chemistry (Public Health), University of London, King's College. Cloth, 8vo, pp. 280. William Wood & Co., New York, 1921.

AMERICAN CHILD HYGIENE ASSOCIATION. Formerly American Association for Study and Prevention of Infant Mortality. Transactions of the Eleventh Annual Meeting, St. Louis, Mo., October 11-13, 1920. Paper, pp. 440, 8vo. Franklin Printing Company, Baltimore, 1921.

READINGS IN EVOLUTION, GENETICS, AND EUGENICS. By Horatio Hackett Newman, professor of zoology in the University of Chicago. Cloth, 8vo, pp. 523, The University of Chicago Press, Chicago, 1921.

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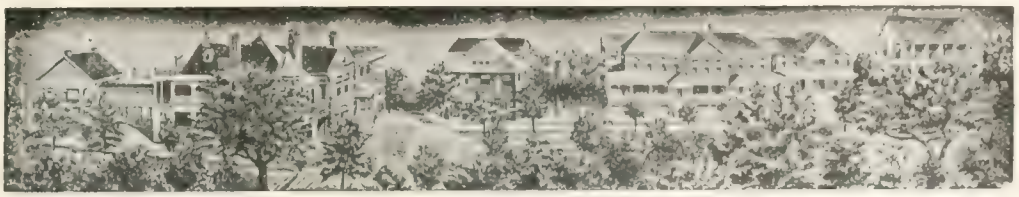

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The Eighteenth Amendment

The problem of prohibition, its enforcement and non-enforcements affording almost as much food for thought to the pros as to the cons, is here termed a "deliberate attack not only upon our liberties but on the very foundations of our lives."

The present book by Charles Taber Stout seeks to prove the participation on the part of organized medicine in the fight for prohibition. No one for an instant could deny the active participation of great groups of men in the fight for the improvement of the social body. Nor can the desirability of this conflict be underestimated. We do not as voters and citizens know what the actual facts are and almost anything however garbled or distorted is of interest perhaps merely for its unintelligent attack.

"There is but one excuse for prohibition and that is ignorance, ignorance as to the effect on health, as a medicine. . . . With the spread of education, or rather the ability to read and write, the dissemination of false doctrines has become increasingly easy. The prohition movement offers one of the most conspicuous examples. The health and moral plea failed."

The author turns the attack on illicit use of drugs by "organized medicine," pointing out the horrible result that "the propaganda against drugs was pushed so vigorously that it began to create a doubt in the minds of the public as to the value of drugs in the treatment of disease." Hence followed the development of drugless treatment, "physicians of health," the osteopath, the chiropracter, the dietitian, etc. The government is no longer seen as functioning for the common good but as the tool of special interests.

The way out seems to be a more thorough understanding of alcohol itself, its uses and abuses. Good whisky perhaps at twenty-five cents a gallon would at least give an ample supply of subjects for original research and observation. The great difficulty is that we thought we had passed this stage. When an author sagely remarks that curative medicine "stands almost exactly where it did at the beginning of the Christian era and that surgery has accomplished less than nothing," we have the feeling that he has yet a long way to go in the pursuit of knowledge. It is an uphill trudge and not always pleasant, but he who takes an infinitesimal or even negligible portion of truth well colored with preconceptions and expects to send it out as "scientific data" to convert those who honestly or dishonestly seek for more or less reasonable ways to be meeting the various problems of life may, in short, be termed wise or otherwise.

Mitchell Kennerley, New York, 1921.

Chemical Disinfection and Sterilization

Bacteriological science has resolved itself into a struggle for existence between man and inimical microörganisms, according to the work recently brought out by Samuel Rideal and Eric K. Rideal on "Chemical Disinfection and Sterilization." The scientific principles underlying disinfection are fully set forth in this book and their application in widely diverse spheres of human life is brought out in chapters on the disinfection of air, sterilization and preservation of food, the sterilization of water, public disinfection, personal and internal disinfection, and wood preservation.

The succeeding chapters are given over to a study of the chemicals employed in disinfection, a branch of therapeutic chemistry which has not usually been the subject of systematic treatment. The gradual immunity or acclimatization of organisms themselves to disinfectants is an important factor, as well as the proposed standardization of the growth of a particular organism for testing purposes. Such procedure, if generally adopted, would place on a comparable basis the results of different investigators.

The book closes with descriptive methods of analysis, chemical composition as well as physical condition being taken into account. To the several chapters are appended representative references which organize in a satisfactory manner the very scattered literature on the subject. A cross index adds greatly to the availability of the material.

Edwin Arnold & Co., London, 1921.

The Treatment of Syphilis

The recent book on the treatment of syphilis by H. Sheridan Bosketel, A.M., M.D.. will fill a place in the library of the busy doctor, particularly the general practitioner who is not able to visit the post-graduate schools or keep up with the technical details of advances in medical diagnosis and treatment of syphilis. As stated in the preface "It is not a volume for the skilled syphilographer —but rather is intended for the physicians who have not heretofore employed the intravenous method of injection.

The experience of the medical profession should warn general practitioners not to undertake the treatment of patients by any of the methods described without first attending a thorough course of instruction under competent specialists, and it would be unfortunate if the book stimulated the use by incompetent persons of the valuable diagnosis and treatment technic explained.

MacMillan Co., New York, 1920.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV | Chicago, May 15, 1922 | Number 5

The Health Plan for Maine—All Agencies Unite

Obligation Self-Assumed to Achieve a Definite Objective Within a Given Time

BY J. C. MURPHY, AUGUSTA, MAINE

THE Maine Public Health Association believes: (1) That the Health of a community is the business of the entire community and can be properly conserved only when the entire community is actively interested in solving for itself its own health problem. (2) That the solution of these problems rests basicly upon the cooperation and wise supervision by the medical profession in the community and that all activities and policy in matters medical should be guided by the physicians who have as their life work the health of their people, and who have devoted years to developing in themselves a special fitness for this work. (3) That, just as the success of the physician's prescription depends upon whether or not his people obey his instructions and take his medicine, so the solving of health problems depends (a) upon the expert analysis of the situation and its needs by specially trained minds, leading to the perfection of a plan of relief and remedy—and (b) upon the organization of the people behind the plan of remedy to the point of actual cooperation and devotion to that plan. Thus has evolved the "Health Plan for Maine."

It is a plan of endeavor—a something to go by—something concrete to set before the people of the state when soliciting their cooperation and interest. A sort of synopsis of what the Maine Public Health Association hopes to accomplish within a stated period of time—so that without the necessity of any technical study of the question, any layman may grasp quickly—just what the Maine Public Health Association stands for—what is being done and what is needed in the way of health work for the state of Maine during the next three years.

The "Health Plan for Maine" is a concrete endeavor under expert guidance on the basis of a comprehensive study of all underlying conditions. All agencies are represented and mutual responsibility of each to the central organization is assumed. The benefits of health are claimed for the whole people. Group problems are met by group measures. The plan is unique in its comprehensiveness and in the unity of purpose which marks this community enterprise.

The health plan for Maine is not intended as a panacea for all ills; it is not held up as an ideal nor as an all-inclusive, faultless criterion for all health endeavor everywhere. It is plainly and simply the plan of work which it was found from intensive study and conference with every important representative group in the state, was most needed at the present time in the state of Maine and which the Maine Public Health Association can reasonably hope to accomplish within the next three years. It is a program of work which will be comprehensive of the essential needs of various localities in the state, yet thoroughly practical and flexible in its application, a program which will provide for doing first the things that are most needed—proceeding step by step in logical sequence—a program which will guard as much as possible against over-lapping and duplication of effort, a program in which "cooperation" is the watchword and "Health and Happiness" the keynote.

Two years ago, the Maine Anti-Tuberculosis Association, together with several existing health agencies doing health work along specific lines, such as cancer control, eye conservation, mental hygiene, dental hygiene, social diseases, etc., and all of the volunteer health agencies were harmonized into one association so that all duplication of efforts and expenditures of time and money might be eliminated. The amalgamation was termed, the Maine Public Health Association. Headquarters were established at the capitol city, Augusta, with Dr. E. D. Merrill of Foxcroft, Me., as the President. Walter D. Thurber of Augusta is the executive secretary.

Early last summer, at the request of the Maine Public Health Association, delegates from many of the lead-

ing Maine organizations, joined with the Maine Public Health Association in formulating the health plan for Maine. These delegates served as a State Citizens Committee which was composed of officers and members of the Maine Medical Association, the Associated Industries of Maine, the Maine State Federation of Labor, the Maine State Grange, the Maine State Federation of Women's Clubs, the Maine State Chamber of Commerce, the Maine State Nurses' Association, the Maine State Department of Health, the Maine State Department of Education, editors of many Maine newspapers, bankers, ministers, lawyers and many others. At this initial conference—the Maine Public Health Association submitted a tentative plan which had been formulated after much intensive study and which had been passed upon by its Medical Advisory Committee from the Maine Medical Asssociation. The tentative plan was submitted to each representative delegate—and copies of the same tentative plan were in turn submitted to numerous local groups represented by the State Committee. An appeal coming from a friend is much stronger than the same appeal coming from a vague commission or committee somewhere miles away from your own community. These local groups were told their community's needs must be incorporated in the plan to make it comprehensive of the entire state. They were told their State Organization was actively cooperating. They were told that no part of the Health Plan for Maine would be forced upon any community. Only the phase of the Plan which relates specifically to the needs of that community and which the community itself realized as being needed would be undertaken.

This broadcast seeking for help and guidance in the formulation of the Health Plan resulted in hundreds of letters from men and women in all walks of life, teeming with suggestions and intelligent interest and promises of personal cooperation.

Several conferences with the various groups were held during the Summer and Fall of 1921 and after a final supervision and seal of approval by the Medical Advisory Committee of the Maine Public Health Association, composed of duly appointed members of the Maine Medical Association—the Health Plan for Maine was launched in December, 1921.

The essentials of the plan are these:

(1) Every community in the state to receive the services of a public health nurse so that mothers, particularly in the rural sections of the state, will be intelligently advised and assisted in the care of self and child both before and after birth. Each nurse will also include in her daily work, bedside nursing—in cooperation with the local physicians—proper feeding and care of the growing child, a watchful eye in her community for contagious diseases, home talks and public lectures on health matters before representative organizations in her community.

(2) Every school child in the state enrolled as a Modern Health Crusader. Thirty-two thousand are now enrolled; ninety thousand are yet to be enrolled. This means teaching health habits by means of the child's love of pageantry and ceremony. Continued active cooperation between the Maine Public Health Association and the State Department of Education will make this possible.

All the leading Maine organizations united in the summer of 1921, forming the Maine Public Health Association, with headquarters at Augusta, Me., and with Dr. E. D. Merrill, of Foxcraft, Me., as president.

(3) Development of industrial medical and nursing supervision in larger industries in cooperation with the Associated Industries of Maine.

(4) Continuation of postgraduate clinics for Maine physicians in cooperation with Maine Medical Association. Every physician in the state will thus have the privilege of listening to the newest and best achievements in medicine, methods of diagnosis, etc. Leading specialists from all parts of the country are brought to these clinics for lectures and demonstrations to our local physicians.

(5) Educational campaign by which it is hoped to accomplish health talks in every local, social, fraternal, labor, commercial, and civic organization in the state, by means of moving pictures, stereopticon slides, lectures, exhibits, distribution of literature, public speakers etc. In developing this phase of The Plan active cooperation will maintain between the Maine Public Health Association and the State Department of Health, the Maine State Grange, the Maine State Federation of Labor, the Maine Department of the American Legion, the State Department of Education, the Maine State Federation of Women's Clubs, and other organizations.

(6) Involved in The Plan are a number of State-Wide campaigns directed specifically at definite causes of needless illness, suffering and unhappiness. These include: A campaign for the control of cancer; continuation of the campaign for the eradication of tuberculosis; a campaign for the conservation of the eyes, prevention of blindness, etc.; a campaign, first, for the control and, later, for the eradication of social diseases; a campaign for the development of mental hygiene—which in words of one syllable means sane living, straight thinking, and the proper control of and education of the mentally deficient; a campaign for the protection of Maine babies, nearly two thousand of whom die each year before they have passed their first birthday; a campaign for the strengthening of local health associations and committees; and a campaign on the importance of proper care of the teeth.

Maine is now widely recognized as the playground of the Nation. With the development of the Health Plan, it is predicted that this state will become renowned as the healthiest state in the union.

The Associated Industries, having had presented to its members the dollars and cents value to them of the health of their workers and its relation to production and industry, are contributing good size checks to the work, contributions which are inspired far more by the spirit of service to humanity than by a selfish interest. Maine manufacturers realize that health is the most potent force that can be marshalled behind any program for the development of a community or state. Money from the annual Seal Sale is being used to a considerable extent. The Granges all over the state are giving box suppers, the proceeds to go for the accomplishment of the health plan. Organized

labor is helping to finance the plan. The Federated Women's Clubs have appointed a committee to devise some way of assisting in the financing of the health program. All of these organizations and individuals feel they helped to originate the health plan. It is *their* "Health Plan" and they do not wish to see it fail.

In most instances local organization is made on a county-wide basis. Each local association contemplates its Medical Advisory Committee composed of local physicians, and its Citizens Committee, composed of representatives from all of the agencies cooperating with the State Association, including the labor unions, industries, clubs, granges, newspapers, ministers, etc. The local affiliated association has its own budget, partly financed by the local share of Christmas seal sale returns, and partly by local memberships, contributions, etc.

When the Executive Committee of the State Granges writes, for example, to the Freeport Grange, suggesting some particular activity in cooperation with the Freeport Public Health Ass'n, the president of the Freeport Grange being one of the Citizen's committee of the Local Health Association, cooperation of the Grange is reasonably assured. Thus are the channels tied to each other.

The most encouraging phase of health work in Maine today is the readiness with which all groups are willing to cooperate in this sort of community activity. Possibly the strongest feature of the Health Plan is the fact that it was organized with the active cooperation and repeated conferences with Maine's leaders in all walks of life. The cooperation in every instance has been thorough and painstaking. It is this cooperation, this concentration on Health matters by the several existing state agencies that is attracting nation-wide comment and congratulations. Maine is the first state in the Nation to attempt a thing of this kind. Letters of congratulations have been received from nearly every state in the Union, from governors, editors, noted physicians, national health authorities from the Surgeon-General of the United States Public Health Service, from the Rockefeller Foundation in Washington, National Congress of Mothers and Parent-Teacher Associations in Washington, from the American Hospital Association, from American Public Health Association, from the American Society for the Control of Cancer, from the National Tuberculosis Association, from United States Chamber of Commerce at Washington, the American Farm Bureau Federation, the Metropolitan Life Insurance Company, the American Manufacturers Export Association, the Canadian Ass'n for Prevention of Tuberculosis, the American Medical Ass'n. National groups in all lines of endeavor are interested in conserving the health of the American people, realizing that Roosevelt's words were true when he said,—"To prevent any possible deterioration of the American stock should be a natural ambition."

Some idea of the way in which the Nation is reacting to the idea of a definite plan of health work on a state-wide scale and promoted by men and women in all walks of life will

Walter D. Thurber, of Augusta, is the executive secretary of the Maine Public Health Association. The Association is pledged, not only to the support of a progressive health program, but to accomplish definite objectives within a given period. Platitudes will not serve; performance is the criterion.

be obtained through the following extracts from a few of the letters received:

R. V. Spencer, executive officer, Massachusetts Tuberculosis League, "I am of the opinion that in making this move you are blazing the trail which every state tuberculosis association in the country must follow."

Dr. C. D. Selby, president of the Ohio Public Health Association, "The Health Plan for Maine has drawn my very favorable attention and I wish to congratulate you upon its splendid accomplishment. The charm of the Plan is in its simplicity; its effectiveness will lie in its power to draw Maine's influential agencies into harmonious action."

Dr. Eric Crull, president of the Indiana Tuberculosis Association, "I believe you are starting something which is absolutely right. Not only is it bound to be a wonderful thing for the state of Maine but it will drive home to the general public the fact that our fight against tuberculosis is an integral part of the campaign for better health."

Miss Anna Gordon, president of the National Women's Christian Temperance Union, "Surely Maine leads! Day by day she first receives Aurora's light and passes it along. Maine was the first state to send the light of a state-wide prohibition law, now aglow in America and not many years hence it will enlighten the whole world. I rejoice that Maine leads in a state-wide 'Health and Happiness' plan and believe it to be another of her good fashions—bound to be widely adopted."

Dr. Clarence F. Kendall, state commissioner of health, Augusta, Me., "The success of The Plan means more Health and Happiness for the people. of Maine. The State Department of Health fully approves of this Health Plan and is working in close cooperation with the Maine Public Health Association in the carrying out of its various divisions."

Surgeon General H. S. Cumming, United States Public Health Service, "While our knowledge of preventive medicine is imperfect and in many diseases we lack essential weapons which are necessary to reduce their ravages, it is nevertheless true that our knowledge of prevention is far in advance of the application of this knowledge by the people. Health officials soon reach the limit of application which can be secured by law and ordinances, and any future significant reduction in morbidity and mortality rates can only be secured by the application of preventive measures by the individual citizen himself. To secure this popular support and especial interest of the individual citizen, it seems to me that your Health Plan will have the greatest value and that it will go far toward securing that ideal condition in which the individual citizen realizes that the prevention of disease is not solely the duty of the health official and frankly recognizes that it is his own obligation."

Dr. A. R. Warner, secretary, American Hospital Association, "the Health of individuals and the average length of life of the citizen of Maine will be improved and lengthened by study and prevention of the conditions that impair health and shorten lives. That past health work has added years to the average length of life is proved beyond dispute and no one believes we have reached the limit. Your program is sound and constructive. Every part has been tested and proved of value."

Joseph H. Defrees, president of the United States Chamber of Commerce, "The Health Plan for Maine is a most encouraging evidence of the way in which Americans are learning to work together for the common good. The purpose and the spirit appeal to me strongly and all the more, per-

The rural districts, too, are to profit by the self-imposed health standards. The Longfellow Rural School, near Ft. Fairfield, Aroostook County, Maine, won the only penant awarded New England in the recent National Health Tournament of the Modern Health Crusade.

haps, because I am, for a considerable part of the year, a State of Maine man myself."

The Canadian Association for the Prevention of Tuberculosis, "We should have been very proud to think that your excellent plan for organized volunteer public health effort, should have been undertaken by some part of my Country."

Lucius E. Wilson, president, General Organization Company, "Your idea of a Health Plan for Maine strikes me as possessing that degree of novelty which is necessary to attract public attention and cooperation and at the same time to be so well articulated as to command the continuing confidence of its supporters."

Dr. James Alexander Miller, president, National Tuberculosis Association, "I am very much interested in your plan for better health in the State of Maine. I think it is becoming more and more evident that as we develop our plans for the prevention of disease and the maintenance of health that it has got to be done by greater cooperation among the organizations and individuals who are interested. I often have felt that our health organizations have kept too much to themselves and have not cooperated sufficiently with other civic bodies and the representatives of business. After all, the health of the community is its most important asset, and not only in dollars and cents but also in comfort and happiness and investment in health is probably more important than any mere business venture. It is therefore with a great deal of interest and sincere best wishes that I shall watch the development of your health plan for Maine and I trust it will have the success that it deserves."

Cities Go A-Camping

By MARGARET MOCHRIE, New York City

HE WAS a true child of the pavements—the little boy who, when asked what he thought Heaven was like, replied, "Why, it's a place where you can walk on the grass without bein' chased by a cop." To him, the country was a place to dream of, beautiful and desirable, but very, very far away.

It is rather pathetic, and certainly an unpleasant thing to think about, but it is nevertheless true that there do exist children who have never run in fragrant fields, climbed pasture fences, or "skinned" up a tree. Their natural right to play in the open is often, of necessity, entirely overshadowed by the business of staying where father's job holds them. And that frequently is far from the summer resorts available only to families of considerable means.

Realizing this, and realizing also the vital need for some out-door life, fresh air, good food, and contact with nature in building healthy future citizens, several cities have made it possible, through municipal camps, for their children, and sometimes for whole families, to spend part of the year in the open.

At Fairfield, near Bridgeport, Connecticut, there is a country playground which is open from July 15 to September 15. Children may stay there as long as their parents wish, for the very moderate sum of $3.50 a week. The families of New York City, too, may procure at Pelham Bay Park, only about six miles from the subway, sites 30x60 feet, with a tent 15x35 feet, at the rate of twenty dollars a season. The camp is laid out in streets and is appropriately called "Tent City."

St. Louis, Mo., has given her citizens a "Vacation Village," even nearer the heart of the city than the Pelham camp. In a quiet section of Forest Park, out of sight of autoists and pedestrians, showers and a playground have been installed, and cots and cooking utensils have been furnished by the local Red Cross Chapter. A common kitchen is conducted under the auspices of the Community Kitchen Club. By this means it was possible, during one season, to furnish meals to guests at the rate of 11⅔ cents per person. The "Village" is used by families from congested quarters of the city, who are recommended by social organizations.

In a little booklet, "Summer Camps, Municipal and Industrial," issued by Community Service, 315 Fourth Avenue, New York, there are many stories of what cities have done to promote the health of their people

Starting, with tent, blankets, and frying pan, for a week end among the rocks on the New Jersey shore of the Hudson.

through giving opportunities for out-door life. There are directions, too, for administering various types of camps, and some sample menus and programs of activities.

One of the largest and most beautifully situated vacation spots near New York is the Palisade Interstate Park, a wooded and lake-studded tract of land along the Hudson, developed for the benefit of the children—and the grown people, too—of New York and New Jersey. The Palisades section of the Park lies chiefly in New Jersey and extends along the river for a distance of about twelve miles. It includes nearly all the Palisades river front from Fort Lee to the interstate boundary line. The Bear Mountain and the Harriman unit of the Park lie altogether in New York, along the boundary line of Orange and Rockland counties.

Artificial and natural lakes abound, and everywhere are scenic wonders that rival Switzerland. The roads that skirt the bases of the rock terraces afford marvelous views of the spacious amphitheaters between the mountains. These roads connect the system of Park camps. There are more than fifty of these camps available. Designed primarily to "aid social welfare organizations to bring their charges to the health-giving out-of-doors under most favorable conditions," they are, neverthless, sometimes used by Boy Scouts, Girl Scouts, and vacation clubs made up of young people whose vacation budget simply won't stretch to cover two weeks at a commercial camp or summer hotel.

Ask a boy whether he would rather eat chicken à la King at the best hotel in town or picnic and frankfurters roasted over a beach fire, and he will choose the latter every time. The beaches at the foot of Palisades are ideal for picnic suppers.

The camps, for the most part, accommodate about seventy-five persons. Each one is equipped with a mess-hall and sleeping cabins designed both for proper sanitation and out-door comfort. Special attention has been given to water supply, waste disposal, boat landings, and swimming docks.

Boy Scouts hike from their camp and cook dinner in the woods around Bear Mountain, where so dense and wild that one can scarcely believe that civilization is so near.

The Commission, which administers the whole Park, carries on all construction work, from the building of roads and boats for the lakes, to the erecting of the smallest bath-house. There are no commercial "concessionaires" or any of the "catch-penny" devices with which the ordinary amusement park is infested. Rowing is free, for the first three quarters of an hour, after which a charge of twenty-five cents an hour is made. The Commission manages the candy and soft drinks stands, and conducts a restaurant and cafeteria service at the Bear Mountain Inn for the convenience of tourists. It supplies, without question of profit, transportation to and from camp sites, sleeping cots, blankets, enameled tableware, groceries, milk, bread, and vegetables. And it goes farther than this. It will even deliver to the camps that wish them, cooked meals, piping hot, in vacuum containers.

This last accommodation which the Commission offers to campers is an unique one. It is designed to do away with the waste attendant on buying in small quantities and the ever present and ever annoying cook problem.

Miss Jolliffe, the superintendent of the Camp Department, does not advise camp groups [illegible] to use the service, as she believes that separate kitchens are more desirable where a great many are concerned. For the small camp

camp, however, the arrangement is an ideal one.

The food is bought and shipped direct to the large general kitchen. There it is cooked, packed in the heat-retaining vessels—which, by the way, were bought from the government and are of the type used in the army—and sent out in an automobile to be delivered to the various camps.

The price of the meals varies, of course, from year to year. Last season it cost seventy-two cents to feed one person for a day. The food is simple and wholesome, the noon-day dinner usually consisting of meat, potatoes, a vegetable, bread and butter, a plain desert, and tea or coffee. Supper is generally a cold meal—a salad, perhaps—with bread and butter and tea. For breakfast there is a fruit, cereal, bread and butter, and coffee. Sometimes eggs are substituted for the cereal. Where the camps are composed mostly of children, cocoa and milk may be ordered instead of tea and coffee.

The large food service kitchen is run in close cooperation with the kitchen at the Inn. Many a time, when there has been a period of rain, and the Inn has on its hands a supply of food which has been prepared for the transient guest, surprised campers discover that they have been given chicken and pie on Monday!

During the summer of 1921, 91,256 meals were served from the kitchen of the Commission. It is no easy task to deliver, in all kinds of weather, for a radius as far away as seventeen miles, breakfasts, dinners and suppers to hungry boys and girls and men and women. But it was done last year without a hitch, and probably will uphold its record this year, too.

The first delivery takes place at eleven o'clock in the morning—at least, the delivery to the first camp. It is usually about an hour later that the automobile is rid of its full cans of dinner and piled high with the empty containers from the day before. The food will stay hot, if necessary, for twenty-four hours, so the camp director may make the dinner hour at any time he pleases.

The second delivery, at four o'clock in the afternoon brings around supper and the next morning's breakfast. The matron in charge of one camp told the Camp Superintendent that she often took the eggs from the breakfast container, as the children in her care didn't care for a hearty morning meal, and cut them up, hard-boiled, over the supper salad. Some of the camps added flavoring, and, on special occasions, "frilled up" the vegetables with a fancy sauce or dressing.

The people in charge of the planning of meals try in every way to please their patrons. If a certain camp, for instance, is composed mainly of Jews, beef or lamb is substituted when ham or bacon is on the menu. Sometimes there is a complaint from one camp that too much rice is being served. An attempt is then usually made to give something else to that group when rice is scheduled to appear.

Last year it was reported that there was, in some quarters, dissatisfaction with the large—to them—amount of spaghetti that was being served. Various groups were asked about it, and there didn't seem to be much opinion one way or the other. It was not until the superintendent visited the children's camp conducted by Greenwich House, that the issue "spaghetti or no spaghetti!" appeared.

"Are we tired of spaghetti!" exclaimed the director there. "Why the children here cry, and say they don't get enough of it! They're mostly Italian, you see." From this one experience it can easily be seen that the diet of the whole system of camps cannot be changed at the request of a few. Some groups, particularly national groups, can stand an infinite amount of one sort of food and still be ready for more of the same thing.

SCHEDULE OF CAMP MEALS

BREAKFAST	LUNCH	DINNER
Monday	**Monday**	**Monday**
Stewed Prunes Hot Cereal and Milk Coffee Bread and Butter	Thin Soup Lamb Stew with Vegetables and Potatoes Cabinet Pudding Coffee Bread and Butter	Cream Soup Cheese Sandwich Rice and Tomato Ice Cream Cocoa Bread and Butter
Tuesday	**Tuesday**	**Tuesday**
Fresh Fruit Dry Cereal or Milk Toast made of Toasted Rolls Milk Coffee	Thick Soup Corned Beef and Cabbage Boiled Potato Apple Cake Coffee Bread and Butter	Thin Soup Beef Sandwich Noodles Spinach Bread Pudding Cocoa
Wednesday	**Wednesday**	**Wednesday**
Stewed Fruit Hot Cereal One Egg for boiling Milk Coffee and Rolls	Thick Soup Hamburger Steak Hash, Brown Potatoes Tomatoes Chocolate Pudding Coffee Bread and Butter	Bologna Sandwich Beet Salad Spaghetti Pound Cake Cocoa Bread and Butter
Thursday	**Thursday**	**Thursday**
Fresh Fruit Dry Cereal and Milk Coffee Bread and Butter and Jam	Thick Soup Beef Stew with Potatoes and Vegetables Coffee Bread and Butter Ice Cream	Radishes Frankfurters Potato Salad Boiled Rice Tapioca Pudding Cocoa
Friday	**Friday**	**Friday**
Fresh Fruit Hot Cereal One Egg for boiling Coffee Milk Rolls and Butter	Clam Chowder Salmon and Tomatoes Peas Rice Green Salad Pastry Glaced Coffee	Cream of Corn Soup Baked Beans Beets Pie Cocoa Bread and Butter
Saturday	**Saturday**	**Saturday**
Fresh Fruit Dry Cereal Milk Bread and Butter with Jam Coffee	Thin Soup Roast Beef Hash, Cream Potatoes Peas Rice Pudding Coffee Bread and Butter	Corned Beef Sandwich Baked Potatoes Rice, Browned Ice Cream and Wine Cake Cocoa
Sunday	**Sunday**	**Sunday**
Fresh Fruit Dry Cereal One Egg Milk Coffee Rolls	Thick Soup Radishes Chicken Fricasse Onions Mashed Potatoes Bread and Butter Ice Cream and Coffee	Sliced Cold Meat Cold Slaw Macaroni Cocoanut Pudding Cocoa Bread and Butter

Bear Mountain Inn—Camp Food Service.

CAMP MEAL SUGGESTIONS

We do the best to live up to these suggestions on account of the low price.
We must be very careful in measuring out the food. *Don't waste it.*

The Management.

This municipal camping ground near Oakland, Cal., makes possible a few days or weeks in the woods, at very slight cost.

On the whole, everyone seemed well satisfied with the fare, which really was remarkable for the amount charged for it. Many groups expressed a desire to have the service during the summer of 1922.

Every year, more people are taking advantage of the Palisades as a picnic and camping ground. The nearness to New York, the beauty of scenery, and the freedom from commercialized amusement, all contribute to its appeal to the thousands who want the real country, with woods and lakes, trees and brooks, and the clear fresh air that comes from the cool, green hills.

For those who desire to plan dietaries for large numbers of vacationers the schedule by menus presented with this article will be helpful.

This menu was the basis of the meals served last year by the Bear Mountain Camp Food Service. The food is remarkably good and it certainly could not be bought elsewhere at the very small sum of twenty-four cents a meal.

Food From Air a Reality

HOW the exhausted soil of America can be fertilized by means of nitrogen drawn from the air is told by Dr. Robert Calvert, chemist, University of Southern California, in the New York *Times*. Food from the air was the optimistic prediction of a chemist twenty years ago but today it is a reality in Norway, Germany, and at Niagara Falls, Canada.

The United States has obtained its nitrogen supply mainly from Chilean ore, but it is only a question of decades when these fields will have been exhausted. During the war, the government, realizing that nitrogen was the prime ingredient of explosives, built at Muscle Shoals, Alabama, a nitrogen-from-the-air plant. The expenditure, made under emergency conditions, in peace times would have built a great nitrogen industry which would be a source of prosperity in peace as well as protection in times of war. The plant is now about to be sold, probably to Henry Ford who proposes to utilize the nitrogen to increase the food supply.

America has unlimited resources for obtaining nitrogen from the air. Power from the rivers could be used by day for the usual commercial purposes, and by night, after the busy hours of peak load have passed, for giant electric furnaces for heating the air to temperatures at which the nitrogen will combine with oxygen or other materials for the production of fertilizer.

The water power possibilities of America are of fascinating extent. Niagara, the best known power site, has a drop of 162 feet; the Colorado River has a drop of 3,000 feet within a flowing distance of fifty miles, with narrow banks which make for economy in dam construction. On the United States' side of Niagara there is developed about 800,000 horse power; one corporation's filings on Colorado River sites total 3,000,000 horse power.

The idea of obtaining nitrogen from air by means of electricity was thought out by Cavendish, an English chemist, who found that the electric spark could be used to combine the nitrogen with the oxygen of the air. For one hundred years the idea lay idle till cheap electric power became available in Norway and Dr. Samuel Eyde supplied financial backing and enthusiasm to take it up. He built five factories from which, as early as 1912, he was shipping nitrates around the Strait of Magellan and selling on the West Coast in competition with nitrate from the West Coast of Chile.

Eyde's is called the arc process. Air is passed through a chimney containing a giant electric arc lamp which heats the passing air to 3,000 degrees Centigrade. One and a half per cent of the nitrogen is combined with the oxygen. The resulting compound is allowed to add more oxygen and is then dissolved in water to give nitric acid. From the nitric acid can be made, if desired, a good nitrate fertilizer, such as lime nitrate. Eyde at Nottoden is supposed to be using some 200,000 horse power. The possibilities at Muscle Shoals are thought to be ten times that amount of power.

The Haber process is the combination of nitrogen with hydrogen. The nitrogen comes from the air, hydrogen from water. Under the influence of heat and pressure and in the presence of an active form of iron, these two gases give ammonia. Ammonia is used as such in icemaking machinery; dissolved in water it is the drug store article of characteristic odor. But for the great uses of agriculture and manufacturing it is converted by oxygen of the air and water to nitric acid.

The American Cyanamid Company has done a great work in developing on this side of the Atlantic the process of combining nitrogen from air with the electric furnace product calcium carbid, which results from the action at very high temperatures of coke on lime. During the war our Government spent millions of dollars at Muscle Shoals in building plants for this process. They were not fully built at the signing of the armistice. Under the terms of the contract with the cyanamid company there was to have been supplied from this plant at Muscle Shoals and from installations of process elsewhere enough of the great high explosive, ammonium nitrate, to correspond to the fixed nitrogen in 500,000 tons of nitrate of soda. Such a project will harness a heretofore unused element of air and make it serve a practical purpose.

The Popular Bogey of High Blood Pressure*

HEALTH facts are interesting. They would constitute absorbing news for universal consumption if only the general public could keep straight on a few fundamental principles and so maintain the proper perspective. The physician in attempting to discover the details of a particular disease-picture studiously avoids giving undue weight to a single sign, knowing too well that the most distressing symptom and the one which led the patient to seek professional advice is by no means always the most significant in its bearings; that symptoms group themselves into complexes in which primary and secondary manifestations get confused in the patient's estimate of his own condition. Conversely, the patient is chiefly concerned with the most spectacular symptom and is prone to let it worry him out of all proportion to its relative importance. This is particularly true with cardiac instability and the group of organic conditions in which heightened blood pressure is concomitant. Normal psychology in such cases would be greatly favored if it were generally appreciated that high blood pressure is a symptom, not a disease, and it may be a favorable reaction through which is made possible the maintenance of the proper function of the organism. The true status in a given case is not revealed merely by a study of the blood stream either by blood pressure apparatus or by graphic methods of recording the action of the heart, but through the continuous observation of the human machine in action. The importance of heightened blood pressure as a symptom is to be estimated only on the basis of its origin and this is the proper subject for detailed, scientific study. It is better never the object of the patient's concern. Equability—mental and physical balance—plays a highly important rôle in the satisfactory outcome of circulatory disorders. The fear psychoses, so great a menace to the worriers in this group, often constitute the greatest obstacles to proper adjustment.

It has not been many years since the blood pressure machine was introduced into this country, but those years have been filled with concentrated attention to blood pressure such as must astound the thoughtful person who realizes how well the world got along without apparatus for measuring the blood pressure. Today at whist parties one of the favorite subjects of conversation is "blood pressure." People talk about it as if it were a disease, and it has become rather fashionable to be able to say, "Oh, yes, I have blood pressure, too." Most people do not know what they are talking about and were better off without the little knowledge they have. Why, then, has it become so important to have blood pressure taken? What is the significance of fluctuations in blood pressure?

An Open Question

Speaking from the standpoint of scientific medicine one must admit that at the present time not a great deal is known about the whole subject. The taking of blood pressure by means of the sphygmomanometer has meant the accumulation of a tremendous mass of material, but as yet this material has not been sifted down to a sound basis. Scientific physicians are still working and wondering on many points connected with it.

It may sound silly and yet it seems worth while stating that blood pressure is a normal physiological condition. Everybody whose heart is beating has to have blood pressure to maintain circulation, and what is commonly misconceived as blood pressure is really an increase in this pressure. Perhaps the commonest morbid process associated with increased blood pressure is disease of the kidney—chronic Bright's disease. Because of this association of chronic Bright's disease with high blood pressure, the significance of high blood pressure in other conditions has not been thoroughly appreciated. High blood pressure may occur, probably does occur, without renal disturbance; it is sometimes associated with hardening of the arteries, but not always. It may occur following syphilis, but other infections may be responsible for it. It is probably true that high blood pressure does occur in individuals otherwise normal and without any demonstrable change in the person's body to account for its presence.

What is meant by increased blood pressure is a difficult question to answer, too, because the range of normal blood pressure is not definitely ascertained. Roughly speaking, the popular rule of normal blood pressure of 100 plus the person's age is accurate enough as a basis, and it must be admitted that many perfectly normal individuals run a blood pressure anywhere from ten to thirty points below the so-called normal for their age without discomfort and without the occurrence of symptoms later in life. Sometimes a low blood pressure is associated with weakened conditions, with anemia, or with chronic disorders. Low blood pressure is said to occur among persons with pulmonary tuberculosis, sometimes with diabetes, and yet it does not indicate the presence of any disease and may be perfectly consistent with normal health.

But how about high blood pressure? What is meant by high blood pressure? As has already been stated, normal blood pressure is a difficult thing to estimate, and what constitutes a high blood pressure for an individual is likewise difficult to understand. One person with a blood pressure of 150 may be in perfect health without symptoms and with a definite tendency not to maintain as good health with a lowered blood pressure. Other individuals with a pressure of 150 may have sudden, sometimes fatal, attacks, involving the arteries of the heart or brain. An individual may undergo a life insurance examination after a fatiguing day's work and be thrown out on account of an increased blood pressure. When in great distress he rushes to his own physician's office, in the course of fifteen or twenty minutes his blood pressure, perhaps starting at a dangerous level will, under the influence of careful examination and reassuring words, drop to within normal bounds. Every physician has seen this sort of a case. A man who had been gambling heavily on the stock exchange was refused life insurance because of high blood pressure. Coming into the physicians office he told a tale of fear that was clearly distressing. The blood pressure machine was kept on his arm and he and the physician sat down for a quiet smoke and talk. By actual measurement inside of fifteen minutes the pressure had dropped twenty-five points and was perfectly normal.

These tremendous variations in pressure occur from day to day and hour to hour, often without any ascertainable reason for the change. With these changes in blood pressure there may or may not be changes in

*The third of a series of articles on "Popular Medical Misconceptions," beginning with the March issue of THE NATION'S HEALTH.

the individual's condition which would suggest such variations in blood pressure. Many persons in perfect good health run high blood pressure of which they are not aware. Let them become aware of their increased pressure and symptoms are almost sure to arise. The symptoms that do occur are many, but are very likely to be referred to the nervous system. Headache, nervous fatigue, irritability, lassitude, may be complained of and the patient fail to appreciate that there is anything wrong with them. However, individuals with decidedly higher blood pressure may have no symptoms.

The significance of all this must be obvious; namely, that in changes of blood pressure, we have something that is not entirely understood even by those who have devoted considerable time to its study. The folly then of popular notions as to their meaning and value must be apparent. The dangers to the individual are mainly those due to autosuggestion. Unfortunately, today most non-professional individuals immediately associate blood pressure with disease of the kidneys, or with apoplexy, or heart disease. This is well enough, if, on the other hand, these individuals are able to appreciate the fact that in many instances an increased blood pressure is unquestionably Nature's effort to restore or maintain the function of the body. Practitioners of medicine have all seen patients with what would seem to be a tremendous increase in blood pressure who were in perfectly good health and were able to keep up normal living. As soon, however, as blood pressure was reduced to "normal" such individuals find themselves incapable of carrying on the day's work with the vigor to which they are accustomed.

Common sense is a valuable asset in the discussion and treatment of increased blood pressure. Common sense will dictate whether a patient who has increased blood pressure must be rigidly handled or not. Increased pressure is simply the incidence of a symptom the cause of which must be ascertained and properly treated. The amount of thought and attention which a non-medical person gives to his own case of blood pressure is distinctly harmful to his own condition. The best medical attention is needed and even then not always can the best of advice be given. It is certainly unwise to make the presence of a mere symptom the basis for a course of rigid treatment which may actually confirm a vicious circle and do the individual more harm than good.

Dehydration of Foods

THE superiority of dehydration over other methods of preserving food is discussed by Dr. Heber W. Youngken, Philadelphia College of Pharmacy and Science, in The *Scientific Monthly*. In preservation of food by any means it is necessary to keep the enzymes, the chemical agents, and the microorganisms, the biological agents, from spoiling the food. Drying, salting, pickling, smoking, refrigeration, and canning attain this end. Experience has shown, however, that these methods of food preservation often destroy the vitamines, change the palatability of the food, and greatly impair its nutritive value.

Dehydration, on the other hand, preserves the food by removing excess water by means of carefully regulated air currents of properly controlled temperature and humidity, thus preventing growth of enzymes and microorganisms. Food so treated has the advantage of retaining its natural flavor, color, and unimpaired cellular structure. Accordingly, dehydrated food will absorb water and swell up to its normal size and appearance. When cooked it will have the same appearance, flavor, and odor of freshly cooked material made from fresh vegetables.

Although dehydration dates back to 1850, its methods were not perfected till during the World War when thousands of tons of dehydrated food were shipped to our armies in Europe. Germany probably was able to maintain her food supplies during the war through the dehydration process. Dehydration reduces the weight of the article from 80 to 90 per cent and the bulk is diminished to one-fourth or one-sixth of the original volume. From 7 to 15 per cent of the water is not removed.

The several methods of dehydration now employed vary in detail but are founded on the same basic principle, they remove the water contained in and between the cells of the food so as to obtain a product which cannot spoil as a result of microbic or enzyme action.

In the tunnel system, the food is placed on screens or racks at the end of long tunnels through which a strong current of dry air is blown. In some systems the food is moved up the tunnel gradually, the temperature becoming higher and the humidity relatively lower, the food arriving at the other end of the tunnel in dry form. In the vacuum system, the food is placed on steel shelves heated either by steam, hot water, or electricity, with a condenser and a vacuum pump to exhaust the air from the chamber and maintain a high vacuum on the system. The vacuum process removes the water, heat is partly by conduction from the metal trays and partly by radiation from the next shelf above.

In the kiln method, square chambers with sloping roofs and perforated floors are utilized. The floor is heated from below by a stove or furnace. The materials to be dehydrated are spread on the floor to a depth of four or six inches. The hot air passes up through the vegetables removing the moisture, and is conducted through the ventilator in the roof. The vegetables are turned over now and then by men with shovels.

The keeping quality of dehydrated foods is illustrated by the fact that at the close of the Boer War a Canadian manufacturer was left with thirty thousand pounds of dehydrated vegetables for which he could find no market. He placed it in barrels which were paraffined and stored away, and at the outbreak of the World War fifteen years later this was shipped to the British army in Europe and used in the preparation of soups of good quality. If kept in paraffined containers free from insects and ingress of moisture, dehydrated food will keep for an indefinite period.

The great advantage of dehydration is that, by and large, it will stabilize the crops of the nation, making food accessible in years of decreased yield.

With an extension of this industry the surplus of years of great yield can be stored and made available in later years when prices are higher and the crop leaner. The amount of planting will be equalized and all will be able to secure an adequate supply of these foods at normal prices.

Dehydration will also conserve food and save the great waste from perishable fruits and vegetables.

The potato dehydration industry, which is comparatively new in the United States, will cause a great saving of hitherto wasted food.

Camps and Beaches in the City of New York

By FRANK J. MONAGHAN, M. D., Deputy Commissioner of Health, New York City

UP TO a few years ago the sojourner from the city to the country during the summer was limited to a vacation season that varied from two to three weeks, with the exception of a small class who could afford the expenditure of time and money necessary to prolong the period. The mountains and the seashore were patronized by thousands of city dwellers, who endured the fare of the country boarding house in order that they could derive the benefits of life in the open and have an opportunity to breathe the pure air of the country for a few weeks.

The ranks of the patrons of the country boarding house are now augmented by thousands of others who establish camps, consisting of tents or bungalows, near a beach within the city limits. The former patron of the boarding house is also found in this newly developed class in large numbers. His limited vacation of previous years he finds can be greatly extended for the same amount of money, since the family meals are prepared as at home and the item of transportation is practically negligible.

A New Health Problem

The city of New York has encouraged the establishment of these camps by setting aside large tracts of undeveloped park land for their use, and many landholders have profitably entered into the enterprise by renting unoccupied space that was being held awaiting a rise in value.

About sixty-two thousand city dwellers occupied these camps during the summer of 1921. Many other city residents, whose numbers are unknown, also maintained them outside the city limits within short distance from New York.

Their occupancy has created conditions that have been of much concern to the Board of Health, for although the movement has for its primary object the attainment of a higher standard of public health, its attendant consequences, where strict sanitary supervision is lacking, represent a decided move in the opposite direction.

To regulate properly the movement of a large number of people from their substantial city homes, where sanitary appliances are fixed for the disposition of waste matter and for providing light, ventilation and water, into the flimsy structures in the camps, with incomplete sanitary arrangements and restricted space, is the problem the public health official has to solve.

The large majority of the campers are totally unacquainted with any mode of life, excepting the one they have been leading in the city for years. The resourcefulness of the country dweller gained from experience, to improvise the adjuncts necessary for his comfort and to observe precautions against conditions that are known to be inimical to the health of his family, are faculties that are poorly developed in the average city camp colonist. He only hears a loud and strong call to the primitive life, which conveys pleasant anticipations that produce exhilarating effects, but not even a murmur of the unknown and hidden impediments that mysteriously appear as his journey advances through the new field.

To watch the arrival of a family from the city at one of these camps and their awkward attempts to adjust their living conditions so as to conform to the limited conveniences offered for their use, represents an active and comprehensive visualization of the subject that is of great benefit to the sanitarian who is charged with the guardianship of their physical welfare.

Let us take a trip through the camp with him on his tour of inspection. He first observes the slope of the land and the arrangements for surface drainage, for although the sun is shining brightly now, the time will come when the waters from the clouds above will pour upon the earth and flow along the lines of gravity and least resistance. He pays special attention to the portion of the ground surrounding the dwellings, for the prevention of dampness by means of proper drainage is a question of prime importance with him. Will the water impound is the second consideration, for if it does the ground will be soggy for a long time or possibly the water may lay for a length of time sufficient to allow the breeding of mosquitoes.

He knows in advance that there are no sewers, for this ordinary city convenience is seldom found in a camp. The privy can system will have to be substituted. The regulations require that these cans be tightly constructed of metal; that they be set upon a base of non-absorbent material with the tops close to the seats and that the base be at least four inches above the surrounding ground; that the seats be provided with tight fitting covers; that an adequate supply of sand or lime be provided in the privy house and that the privy house be adequately ventilated and screened against flies.

When possible, a scavenger service must be maintained. The contents of the cans must be buried deep in a remote place. All garbage and refuse must be kept in tight metal cans provided with tight fitting metal covers, and be removed from the premises daily. Cesspools must be built to receive the discharge of the liquid waste from the kitchens and wash tubs, for city dwellers in the country are prone to throw their liquid waste on the ground. A supply of drinking water drawn from an approved source must be piped to the camp and at least one tap must be provided for every four tents. It is the duty of the Sanitary Inspector to instruct the colonists upon the precautions to be observed in their new method of life, including impressing upon them the necessity of using every possible means of ventilation to provide a constant stream of pure air within the confined quarters they are occupying temporarily and the building of platforms and barriers to dampness.

Competent Supervision

The camp must be under the supervision of a competent person who will be held responsible for enforcing the regulations of the Board of Health during the absence of the Sanitary Inspector.

The Board of Health has before it as an example, the large number of deaths that occured in the military camps in this country during the war as a result of influenza. Although typhoid can be prevented through immunization, influenza spreads quickly in quarters that are restricted or improperly ventilated.

We now visit the beach nearby. In addition to the campers, it is also used by a large number of transients from the city. The proximity of the nearest sewer is first ascertained. If a sewer is within five hundred feet the beach cannot be used for bathing

purposes. If over that distance away, the contents of the sewer are colored and the colored liquids observed as they float from the sewer. The colored appearance is retained for a long time, the tests are made under varying tides and if the coloring matter reaches the beach it is a positive indication that the sewage does too. There are certain waters within the confines of the city of New York that are polluted and bathing is not allowed in them under any conditions.

Strong life lines of rope, life belts, surf boats and a competent life guard are required.

The dressing rooms must be substantial and clean and the accommodations for the two sexes must be located in separate parts of the establishment. Sufficient water closet accommodation and an adequate supply of drinking water are required for the patrons. Special attention is given to the sterilization of all towels, suits, stockings, and other paraphernalia used by the bathers. They must be sterilized after each use.

In addition to the beaches near camps, there are also many large ones that are patronized by people from hotels or cottages and by transients. They are supervised the same as the other beaches referred to.

The housing shortage in New York accelerates the summer movement toward the beaches. It is a well known fact that has been brought out through investigation that nearly all of the available homes in New York are occupied. The only ones that are not, being those that are held for exhorbitant rents or that are in a bad state of repair. Families have combined in order to secure quarters and all of the tenement buildings contain more people than they did before the war.

For this reason people start for the camps earlier than usual and stay as long as the temperature will permit. Beyond doubt the movement contains much that will benefit the health of those who participate, and as time goes on and the campers gain experience conditions will improve. In the meantime however, the Board of Health exercises unusual vigilance in dealing with the subject of camps, for it is fraught with possibilities that are liable to be more of a menace than a help in promoting the physical welfare of the people of the City of New York.

The Modern Pay Clinic and the Doctor

By IAGO GALDSTON, M.D., Secretary, Industrial Service, New York Tuberculosis Association, New York City

THE opening of a pay clinic by Cornell University, in the city of New York, has once more brought to the fore the matter of popular pay clinics, and once again we are treated to various dissertations by proponents and opponents of the pay clinic scheme. With no aim to contribute to the general confusion and turmoil, what follows is written neither in definite approval nor in condemnation of pay clinics. My specific thesis is simply an economic interpretation of the pay clinic, the forces that bring it into being, and the rôle it plays in the current scheme of things.

It is my conviction that when examined from an immediate social view point the pay clinic proves to be an institution conducive to the improvement of public health and to the prolongation of individual life. It is my conviction, after several years of study and work in and with pay clinics, that the various claims made in their favor are substantially correct and, in the major, warranted. It is true that today only the poor and the rich receive adequate medical attention; the rich from their well retained family physicians and specialists, and the poor through the various charitable organizations, hospitals, and dispensaries. It is true, further, that there is a large middle class, not middle class in the current economic sense of the term, which does not receive adequate medical attention. And finally it is also true that to some degree the members of this "middle class" *do* avail themselves of the services of the pay clinics.

Granting all this as substantially true and correct, several pertinent questions present themselves. Is the pay clinic really a solution to the health problem confronting the so-called middle class? If so, to what degree can, and should, the pay clinic, as established today, be extended and perpetuated? And then, too, what are today's relations between the physician and the pay clinic, and what do they promise to be in the future? With these questions set before our minds let us uncover a few facts that must bear heavily upon whatever answers we may see fit to make.

The Historical Background

Let us first appreciate the development of medicine in the last two hundred fifty years, not from the viewpoint of the various medical discoveries and developments, but rather from consideration of the changes suffered by the science of medicine in its relation to the individuals upon whom it is practiced.

The average physician has but little opportunity for the study of economics or history, and even when he leans toward cultural pursuits he seldom goes beyond the study of pure medical history. The relation, however, of medical history to economics is intimate and profound and an understanding of the same would render evident many of the causes of the various ethical, social and economic discrepancies between current life and current practice of medicine.

The last two hundred fifty years, have seen one of the most profound revolutionary changes in the entire history of the world. Nothing in previous history can compare with it. No revolution was ever as profound, as effective, as powerful, and as world wide in scope, as the industrial revolution that began in England with the harnessing of steam, and that now has taken root even in China. In the might of that revolution, personified in the three headed monstrous force, steam, steel, and commerce—men and nations were as mere pawns. The face of the earth was changed by its energies; whole races were enslaved and exterminated; the red man was driven from the eastern shores into oblivion; the black man was chained to the yoke of bondage; his earthy virility destroyed by unending toil, strong drink, syphilis, and consumption. The villages and hamlets of old England were razed to the ground to make way for sheep and wool. The old castles of feudalism were abandoned to the sport of time and the elements, and in their stead, arose the strongholds of industrialism with their fiery caves, Stygian smoke stacks, and the perpetual hissing of steam. With all this came corresponding changes in the social relations of men. Nobility and the creed of paternalism were drowned in the

blood of the French Revolution. The force of religious discipline was destroyed by the Reformation. The philosophies of individualism mastered the souls of men,—the philosophies of "*laissez faire*," of each for himself and the hindmost to the devil. But the hindmost embraced the greater mass of humans—men, women, and children.

Commercialism drove the tiller of the soil from his fields, burned down his hamlet, drove him to the cities, forced him into slums, and then bound him down as an appendage to giants of steel and steam. Commercialism fastened its malignant tentacles not only upon men who were fit for toil, but upon women, too, whether the maid in bloom, or the woman in gestation. Nor did the child escape. The darkest pages of history are not those that chronicle the deeds of Attila and his Huns, but those that describe the bestial horrors of the early factory life. All this transpired in the last two hundred fifty years, and the effects of the ruin, the disruption, and the merciless sacrifice of human life to human greed, linger unto this very day.

With such profound changes in the scheme of human relations, medicine could not possibly escape unaffected, neither medicine as a pure science, nor medicine in its material relation to the lay individual. To the various diseases known and enumerated by Hippocrates and Galen were added those, heretofore unknown sufferings, that sprang from industry, and various noxious elements used in commodity production. The heretofore unknown congestion in the slums contributed to the new health problems; but over and above these came the disrupting effects of the fiendish drive of industry upon the mental and psychic fabric of man. In the narrower sense these were technical problems; problems that lent themselves to solution by the genius of individual men, and with the passing of time many of these technical problems were solved. But the greatest problem of all, the problem of the readjustment of relations between the medical practitioner and the economically disfranchised mass of toilers, has not yet been solved; in fact, but few practitioners are intelligently and understandingly conscious of the existence of the problem and its nature.

The pay clinic is a feeble attempt at the solution of one phase of this pressing problem, the phase of inadequate medical attention available to the average toiler. It requires but little thought to discover that this problem is essentially an economic one. Why is it that the large mass of indiviuals is without adequate medical attention? Is it because they do not need it, or do not want it, or that there are insufficient physicians? Hardly! It is because, as organized at present, these self-respecting men and women are caught between the two difficulties of self-respect and economic limitation. They will not go to the dispensaries; they cannot, without much privation consult a private practitioner. In the same vise too, is caught the medical practitioner. He is no less liable to the economic forces of current society than are the rest of the cogs of the great industrial machine-society of today. If he would live, the "cash nexus" must be the basis of his practice.

And so, as a solution, comes the pay clinic, with its cheap fees and its mass service. As a palliative, one may grant its effectiveness; as a cure, one must doubt.

The Personal Equation

Medicine is spoken of as a science. It is a science and in the finest sense too, but medicine is also an art. One cannot practice medicine as one practices architecture or engineering. There are laws in medicine that are as basic and positive as the laws of architecture and engineering, but it is in the manipulation of these laws that the art element of medicine is inherent. No case is identical with any other case, nor will any solution in the one circumstance precisely fit another. Even the causes of the same condition will vary from time to time. Mass service in medicine makes use of the science of medicine, never the art. I can conceive of no circumstances under which medicine can be practiced satisfactorily in which the personal relation of the physician to the patient is not thorough and complete. When the patient is merely No. 1 or No. 7 in the clinic series, as he is in the service of the pay clinics, medical practice is but a make shift. This is especially evident in the light of what is common knowledge to all practitioners, to-wit, that among the forces operating to bring the patient into the office of the physician, the mental element of his sufferings is the strongest. One of the most common complaints heard against the pay clinic comes from patients denied the opportunity of airing and circumlocuting their difficulties. And the majority of these patients suffer more from precisely this lack of opportunity to air their difficulties than from the physical discomforts of the difficulties themselves.

Upon this theme we may be permitted to project our thoughts into the space of future time, and to conceive that the character of the relations between physician and patient must, of necessity, become more personal and intimate. Thanks to the various schools of psychotherapy, Freudian or otherwise, the average physician is now impressed with the importance of taking the psychic status of the patient into consideration when according him treatment. The mere writing of a prescription and the assurance "all will be well if you take these pills three times a day with plenty of water" no longer suffices, in the majority of cases. Nor can it either! Life has become too complicated, and adjustments too difficult, for the average individual. And the doctor, with his knowledge of the structure and function of the human body, is called upon to help in making the necessary adjustments and to point out the "rational way," as did the priest in former times. Further, too, the element of prevention in medicine is beginning to dominate the element of treatment, and in the former, in contrast to the latter, education plays an extremely important part. Treatment is essentially a function of the physician, whereas prevention implies the understanding cooperation of the patient. To develop such an understanding cooperation, however, education is necessary, and in time the physician in his relations to the patient will be essentially an educator. This is, of course, as it should be and, when we have reached this stage, the practice of medicine will have attained a truly high development.

All the foregoing precludes the possibility of mass treatment and presupposes to the contrary the most intimate relations between patient and physician. It further implies an economic condition in which the "cash nexus" basis in the relation between physician and patient has been displaced by one in which the economic interests of the physician are sufficiently well taken care of, and all of his energies liberated, for the sufficiently trying task of the competent practice of medicine. This is not provided for by the pay clinic, nor even by social health insurance. Both these schemes are palliative and, to that degree, are of some benefit to man. But, as physicians who are es-

sentially interested in cures it behooves us to look elsewhere for a competent remedy. We must look for it in a change in the economic relations between men, in a higher social sense of obligation, in the death of the "cash nexus," and in the substitution therefor of a real humanism.

The chief virtue, therefore, of the pay clinic of today is that it is a fairly competent palliative, but if we are allowed to speculate on its future, it appears that some day it will come into its own. The individual relation of physician to patient must be retained, but undeniably the gross technique of medicine requires far more equipment than the average physician either can or should possess. While, therefore, the physician should continue to play the rôle of a sort of father confessor and chief guardian of the individual's psychic and physical soundness, he should at the same time also have at his command, and make use of, the various instruments and experts available. And to this end the now organized pay clinics may in due time be made to serve.

Recreation Association Makes Reports

NEARLY nine million dollars was spent for purposes of recreation by 458 cities in the last year, reports the Playground and Recreation Association in the March issue of *The Playground*, fifty-three cities having donated playgrounds, and eighteen of the number placing the value of the property so delegated at $1,182,700.

Five hundred and two cities report 4,584 centers under paid leadership, the largest number recorded. Workers to the number of 11,079 were employed to direct play at these centers. Municipal funds were used for the entire support of the work in 244 of the cities. Reports from 1,170 cities bring out the generally awakened interest in recreational activities.

The fact that 502 cities report playgrounds and recreation centers maintained under paid leadership during the last year is considered most encouraging by the Association, representing as it does a satisfactory increase over 1920, when 465 cities so reported. The total of 4,584 centers also shows satisfactory growth, as compared with the 4,293 reported last year.

In addition to the 502 cities which are carrying on recreational activities under paid leadership, centers are maintained in many other cities, as shown by the reports received. Among these are school playgrounds in 101 cities, school playgrounds with special paid leaders in three cities, centers under volunteer leadership in six cities and unsupervised centers in fifty-nine cities.

Fifty-one cities initiated the work during 1921, thirty-four of them wholly or partly under municipal control. In addition, twenty cities report ground and equipment purchased with a view to establishing the work, and twenty-two cities suggest definite plans for work next season.

Of the 502 cities listed in the statistical table of the report, sixty-eight show 147 centers used exclusively by colored children. Some of the cities report playgrounds used by both colored and white children.

A steady increase in the number of employed leaders is a feature of the work. This year's total, 11,079, exceeds the 1920 report by 861. Of the number, 5,181 were men and 5,898 women.

As the number of trained workers in this field is growing steadily, training classes for them, whether employed or volunteer, are being established in a growing number of cities. There were ninety-four cities conducting such training classes in 1921, with an enrollment in fifty of these cities of 1,580. Training classes for volunteer workers were conducted in sixty-nine-cities, as compared with nine in 1920, and thirty-five of them reported an enrollment of 1,890 students. A marked improvement is shown in the number of cities requiring civil service examinations for recreation positions in 1921, this being forty-one, as against twenty-six in 1920.

Various forms of municipal administration are reported by the 367 cities, the playground work of which is supported in whole or part by municipal funds, the managing authority being the School Board in 128 of the cities, while in eighty-eight of them power is vested in Playground and Recreation Commissions or Departments, Division Boards and Bureaus of Recreation. In fifty-six cities the work is under the authority of Park Boards, Departments and Bureaus or Park and Recreation Commissions.

In the balance of the 367 cities almost every civic organization extant has apparently been called into service to manage and control the recreation work, including Departments of Public Welfare, Departments of Parks and Public Property, City Councils, Boards of Trustees or Selectment and Departments or Boards of Public Works. In one town the local Public Safety Committee was called upon; in another the Department of Streets and Public Improvements; in another the City Planning Commission, while in various other cities and towns the City Health Department, the Department of Public Affairs, the Public Recreation and Welfare Commission, Municipal League and the Public Athletic League of the county were called upon to handle the work.

In almost 200 cities the managing authority was vested in private organizations, these having the widest possible range, from the Red Cross to the Rotary Club, and covering churches, industrial plants, women's clubs, the Y. W. C. A., the Y. M. C. A., various boys' organizations, parent-teacher associations, settlements, and even, in some cases, private individuals, the last being the case in seven cities. In other cities private organizations and municipal departments combined in the management of the playgrounds and recreation centers.

More than five million dollars voted in bonds for recreation purposes is the report from twenty cities. This figure includes Duluth, Minn., with fifty thousand dollars voted for a municipal golf course, and Akron, Ohio, which made two million dollars available for establishing parks and playgrounds. Memphis, Tenn., plans to spend one hundred thousand dollars on a municipal swimming pool.

A total average daily attendance of 1,154,983 is reported by 407 cities. For attendance at Winter centers, 585,761 is reported by 158 cities. A growing use of playground facilities during the evening hours is noted from year to year. Other features of the report are the closing of streets for play, where city authorities safeguard the lives of thousands of children who lack playground privileges.

The number of cities reporting play streets thus established during the year is thirty-eight, twenty-five of them providing play leaders. Ninety-eight cities report safeguarding streets in Winter for coasting.

The Sheppard-Towner Bill

By EMELIE M. PERKINS, Supervising Nurse, Burlingt on Visiting Nurse Association, Burlington, Vt.

SO MUCH has been written and spoken regarding the Sheppard-Towner Bill that it would seem as if there could be nothing further to add. But, although the bill has been passed, it is still possible for the states individually to refuse the grant of money from the Federal Government and, since that is possible, the matter is still open. A short time ago, at a conference of doctors, this question was brought up. The Medical Association of the state had gone on record as being opposed to the passage of the bill, and it appeared at the conference that the feeling was unanimously against the bill, but when the doctors were asked to indicate by a show of hands how many had read the bill, less than half of them responded in the affirmative! Under these circumstances, it is not surprising that clear and logical reasons for opposing the bill are hard to find. Even among these physicians —educated men—there were some who believed still that the bill would bring in compulsory registration of pregnancy! And this in a body of men who would laugh at a woman for believing that she could wean her baby only at the full of the moon, because a neighbor had told her so!

Paternalism was the bogey man for most of them. The fear of pauperizing the free American people, was another argument advanced. Also, the fact that state plans must be submitted to Washington for approval, influenced some. Because so much publicity has been given to the side opposed to the Sheppard-Towner bill, and because literature describing the degradation of the American people under the bill, is so much more available and so much more startling than the arguments for the bill, it seems only fair that more efforts should be made to explain the provisions and the desired results, as seen by adherents of the bill.

The first fact which confronts us is that the United States is seventeenth—the last—in the list of countries which keep statistics regarding the death rate of women during childbirth, or from causes due to childbirth. That is, that in the United States, out of 1,000 women giving birth, more will die than in any one of the other sixteen countries which keep statistics on this subject,—certainly not a fact in which we can take pride! Furthermore, we are doing little to lower this death rate. Comparatively few cities have provided prenatal and postnatal care for the mother, and the number reached is very small. That seems to me the answer to those who would place this work under state control. They have not established prenatal care, education in the hygiene of pregnancy and infancy, medical care at time of delivery, nor postnatal care. They do not now propose any definite plan whereby this work can be carried on by the state, and if it were left to the initiative of the individual states, some would surely neglect it, and the death rate would not be materially lowered. While we argue about it in this fashion, with no constructive suggestions, we hear continually of mothers lost through eclampsia or septicemia, both so often preventable.

In regard to pauperizing the people, a question also raised by the medical profession in regard to clinics, it seems that we who announce loudly that we cannot support a family on less than fifteen to eighteen hundred dollars a year, should realize that food and clothing and fuel cost the laboring man just as much as they cost us. The man who earns $2.40 a day, supports a family of five, pays hospital and physicians' bills for a sick son, must necessarily go without something absolutely essential to mere health and well-being. And if in addition he must save for his wife's confinement and aftercare, the problem becomes a very serious one. As a matter of fact, women have shown themselves unwilling to accept free care during confinement, when they could possibly pay for that care.

And how many college students pay the entire cost of their education? They do not even pay in proportion to their means, for some of them are driving their own cars while they are accepting the bounty of the state, or of the private individuals who have endowed their particular colleges, but no one worries about pauperizing them. Some of them, of course, will make contributions to science or industry, and these will repay for all. But surely, the mothers saved by the care provided for in the Sheppard-Towner bill, would repay, too.

As far as paternalism is concerned, why is that such an alarming word? Compulsory education is surely paternalistic, but no one complains of that. Paternalistic seems to mean the provision of any measure by the central government at Washington. We elect the President as surely as we elect the Governor, so why need we oppose a measure simply because the central government reserves the right to approve the states' plans?

The need for such measures as are provided for by the Sheppard-Towner bill, is not even considered by the opponents of the bill. The most telling of all arguments "and meanwhile, the women die," is waved airily aside. One opponent of the bill has stated that practically every village and hamlet in the United States has its physicians and nurses. Dr. Nicholl, Deputy Commissioner of Health of New York, at the last meeting of the State Medical Society, said that in the last two and one-half years, eighty-six communities in New York state alone have appealed to the State Commissioner of Health to supply them with physicians. Thirty-two are still without physicians. And it is not only in these districts without physicians that the need is felt. The other day a woman died of septicemia, following childbirth. This happened in a city well supplied with physicians. The factor in this case was ignorance. The woman was delivered without a physician, and had no aftercare, either medical or nursing, for several days. The bill provides explicitly for education in the hygiene of maternity and infancy.

It is easier and pleasanter to repeat our neighbors' opinions based on the opinions of a neighbor of *his*, than it is to inform ourselves accurately, but it is a grave responsibility to nullify, either through personal economic considerations, or through laziness, a measure which can prevent deaths. Any really vital defect in the law will be brought out by measuring its provisions against the actual situation in the field it is designed to cover. The prompt acceptance of the measure by thirty-six states indicates that it actually does meet local needs and gives promise of early determination as to the adequacy of the measure. In the meantime, let us inform ourselves concerning the exact provisions of the bill, and also concerning conditions in our own communities, and then—and not till then—let us express an opinion.

Jules Schevitz, 1897-1922

By MURRAY P. HORWOOD, PH.D., Department of Biology and Public Health, Massachusetts Institute of Technology, Boston, Mass.

WHEN night falls at the end of a long, and beautiful day, its enfolding, comforting charms are welcome indeed. But when darkness comes shortly after the the dawn, black night loses its comforts and repose. The problem of life has always been linked up with the problem of death. The postponement of premature death has been the goal of the public health and medical professions. It is therefore distressing beyond description, when a young, promising life, in the development of its fullest strength, power and beauty is taken before it has had time to flower.

Such is the story of Jules Schevitz, recent general secretary of the Oklahoma Public Health Association. Mr. Schevitz died on March 22, 1922, at the age of 24, only at the dawn of a promising career of attainment and service. Even at his early age, he had attained a degree of prominence and accomplishment, usually achieved only by men of maturer years.

Jules Schevitz was born in Brooklyn, N. Y., on June 1, 1897. Educated in the public schools of that city, he rapidly made his way to Townsend Harris Hall and later to the College of the City of New York, from which he received the degree, Bachelor of Science in 1917. At the end of his junior year in college, he developed pulmonary tuberculosis and through the active interest of his friends, and especially of Professor C.-E. A. Winslow, he was able to spend a year at Trudeau, N. Y. There he had the good fortune of coming under the spell of Dr. Edward Livingston Trudeau, the pioneer in sanatorium treatment of tuberculosis in the United States. Many other maturer men, afflicted with the same disease, helped to mold his mind and his career and from these he received the inspiration for his life's work.

At the end of one year, he returned to New York City, robust in health, and mature in thought. He resumed his studies at the College of the City of New York, specializing in the biological sciences, and particularly in public health. His schedule being light, he undertook a public health survey of Union Hill, N. J., which he conducted in a highly efficient and satisfactory manner. In June, 1917, he attended Dr. Jacob's Tuberculosis Institute in New York City, from which he derived immeasurable stimulus and satisfaction. During the summer, he conducted a Tuberculosis Survey of the State of New Jersey, which immediately demonstrated his ability, his thoroughness, and his keen love for the work.

In September, 1917, at the age of 20, he was appointed Secretary of the Oklahoma Tuberculosis Association. Little had been done in the organization and conduct of the Anti-Tuberculosis work in Oklahoma, and almost single handed, Mr. Schevitz had to begin to build the splendid monument to tuberculosis and public health work which he left behind. Plunged into

Jules Schevitz, general secretary to the Oklahoma Public Health Association and member of the Editorial Board of The Nation's Health, died in Oklahoma City on March 22, 1922.

the seal sale campaign immediately after his arrival in Oklahoma, he was able to raise more than forty thousand dollars, an increase of 2000 per cent over the amount raised the preceding year. The splendid showing of the seal sale insured an extensive and progressive public health and tuberculosis campaign during the coming year.

There followed in rapid order, the organization and development of the program of the Association. A splendid, active, and interested Executive Committee for the State Association was appointed, and similar committees were found to serve first in the larger municipalities and then in the more rural parts of the state. Trained tuberculosis and public health nurses were carefully selected from all parts of the United States. Tuberculosis clinics were established and placed under competent medical supervision, infant and child welfare work was initiated and conducted, and similarly, school nursing activities were begun and fostered all over the State. Special attention was given to the introduction of public health activities among the Indians and Negroes, and to the care of discharged tuberculosis soldiers.

Realizing the need of improving the general public health situation in Oklahoma, as a means of combating tuberculosis, Mr. Schevitz instituted a series of public health surveys in the larger cities in Oklahoma, thus conducting what constituted the first thorough, state-wide public health survey of urban conditions in an American state. Public Health nursing institutes were held from time to time, exhibits were planned and erected, special pamphlets on tuberculosis, infant and child welfare and on the communicable diseases were printed and widely distributed. Other methods used in the campaign of public health education, and particularly the medium of the newspaper, were employed. Mr. Schevitz also edited a popular monthly bulletin, which contained all the news of the activities of the Association. In addition, he also served as a member of the editorial board of the Nation's Health.

Realizing the need of adequate hospital facilities for the care of the tuberculous in Oklahoma, Mr. Schevitz waged a legislative compaign for sanatoriums, and succeeded in getting the legislature to pass a bill providing for the construction and maintenance of three sanatoriums, two for whites and one for the colored tuberculous at Clinton, Talihina and Boley, Okla. The provisions of this bill were so well drawn that Mr. Schevitz received the admiration and commendation of prominent tuberculosis members all over the country.

This account of the activities and attainments of Mr. Schevitz, though incomplete, speaks very highly of his fruitful, young life. As a worker he was indefatigable, and there was no limit to his aspirations for the improvement of the public health of

Oklahoma. In the brief span of four years and six months, he had placed Oklahoma in the forefront of public health progress, and made her name known abroad as well as at home.

But it is the remarkable conduct of his life, that is perhaps the most abiding and cherished memory to those who knew and loved him most. Activated by a high ideal of service to his fellow-men, he gave of himself without stint or limit to the cause of public health. His motives were always transparent, and his charming and pleasing manner, combined with a graciousness of spirit, made his path among men and women easy. His was the affectionate nature, and the splendid state-wide organization which he has left as a monument to himself, is cemented by the love and devotion of those with whom he was associated. He was kindly in his relations, courteous to the extreme, and a gentleman on all occasions. He was extremely tolerant of the short comings of others and sensitive to their pains and sufferings. He craved the affection and good will of all who knew him, and by his behavior he rarely, if ever, failed to obtain it.

He loved Oklahoma. To him it was a land of rare opportunity. He saw its tremendous possibilities and strived as hard as he knew how to make his particular contribution to its development. He came to give to Oklahoma, and in so doing he was amply rewarded. His was the durable conquest, one that will linger in the minds of men for many years, and in the work of the Oklahoma Public Health Association, as long as it endures. The country has lost a brilliant health executive.

Digest of Sanitary and Hygienic Advance

IT IS not necessarily in the isolated case of outstanding interest nor in discoveries of new and rare conditions that health officers are chiefly concerned, but in new light on old problems and in possibilities of prevention growing out of newer practice. Especially is it necessary and desirable to follow what their confreres are doing.

Purgatives and Health.—The Health Officer who would keep his clientele in good physical condition will find a fertile field of labor in combating self-purgation. Mankind's predilection for taking things out of a bottle may perhaps be explained in part by the widespread prevalence of constipation, induced to a very large extent by man's artificial diet. At any rate, the amount of laxatives, purges, and salines consumed annually by the general public is enormous. The particular drug used varies considerably according to local preferences, but the great fact is that there is altogether too great a prevalence of purge-taking. In certain sections calomel and soda is taken "to turn over the liver," in others, magnesium sulphate and the various effervescent salines are the mode; while many prefer the combinations of aloin, senna, cascara sagrada and the other vegetable compounds to "start the bile." Aside from the actual harm done to the digestive tract by the constant derangement produced by irritant drugs, there is the danger of poisoning by calomel taken to relieve constipation caused by unrecognized bowel paralysis, ileus, or incarceration and every surgeon has seen appendicitis fatalities resulting from the stimulation of an intestine which Nature was trying to keep at rest. The habitual use of concentrated foods, the drinking of too little water, the easy chair and the slothfulness which accompanies it, these are the arch-producers of chronic constipation. The cure or improvement of the condition is largely a matter of the regulation of the habits of daily life and is not to be effected by the miscellaneous ingestion of drugs of any sort. Constipation may be a serious condition, but in any event self-purgation is not the remedy.

Education of the Appetite.—It is true that many people live to eat, also that they are the ones who dig their graves with their teeth and who thus furnish the residuum of unexplained premature deaths which health officers are now laboring to reduce. It is not entirely the simple matter of over-eating or under-eating so far as gross quantity is concerned, the amounts and proportions of the food accessories also play a very great rôle. This latter phase of the subject is receiving very considerable attention at present and the problem in its various phases is being subjected to intense study in many parts of the world and under widely diverse conditions. As a result, very considerable additions are being made to the knowledge of human metabolism and it has already been possible to apply these facts in a practical way. To a certain extent, the health officer can do much toward the control of the deficiency diseases through educational methods, but it should be remembered that the education of the adult appetite, as Mr. Volstead can testify, is very difficult of accomplishment. To educate an appetite it should be caught young, not much later than the grammar school period, and carefully instructed for a long time. Parents will take far more kindly to the control of the child's appetite than their own. Therefore, the most lasting results may be obtained by teaching the child what and how much to eat, while the parent is instructed in the importance to the child of a well balanced and adequate, but not excessive, diet.

Malaria Relapses.—One of the most disappointing things in anti-malaria work is the frequency with which relapses occur, particularly in persons of subnormal vitality. This sometimes constitutes an economic loss of considerable magnitude. Recurrences and relapses as a rule result from incomplete treatment, the added factors being fatigue from overwork or exposure and concomitant helminthiasis. The latter factor is one which is frequently overlooked and the search for intestinal parasites and the treatment of the condition should be instituted as soon as the temperature has reached normal. This should be a routine part of malaria treatment.

Sputum Commerce.—Comparative plotted curves of the mortality rates from the fecal-borne and the acute, sputum-borne infections for the past quarter century will show that, whereas there has been a continuous fall in the former, the latter has risen at an even greater rate. This of course means that there has been an increasing opportunity for sputum interchange between the sick and the well. The most obvious phase of the problem has been attacked by the "Do-not-spit-on-the-floor-to-do-so-may-spread-disease" campaign, a movement of the utmost value from the educational view-point and one which has undoubtedly done much to teach the potential dangers of promiscuous expectoration and to control a very widespread and disgusting habit. The changing habits of community life since the time when the bulk of the population ate in their own homes and

when the average individual traveled comparatively little are probably responsible to a considerable extent for the increase in the acute sputum-borne diseases. More people eat in public places nowadays than ever before and modern transportation tends to increase the amount of restaurant and hotel life. Unless the mess-gear used in these places is sterilized between usings, the opportunities for its serving as a vector for the organisms of disease is markedly increased. This is to a certain extent offset by the popularization of the automatic dishwashing machine but in places like the soda-water fountain and the similar soft-drink emporiums which have replaced the saloon, it is extremely difficult to secure efficient cleansing and sterilization of glassware. Disinfection by heat is objected to because of the heavy losses from breakage and also because of the slowness with which cooling occurs, a serious fault from the view-point of the iced-drink vendor. It is believed that mechanical sterilization in cold chemical solutions is practical. To be sure the washing machine would have to be resistant to the chemicals to be used but there are now on the market metals which could be used very effectively for this purpose. Efficient rinsing after sterilization would be also necessary. The entire question is worthy of careful study at the hands of practicing sanitarians, for certainly the control of the sputum-borne infections is one of the most serious problems which now confronts them.

Carbon Tetrachlorid as an Anthelmintic.—Researches which have been recently made by M. C. Hall, Senior Zoologist of the U. S. Bureau of Animal Industry, indicate the practical utility of carbon tetrachlorid in the treatment of helminthiasis and at about one-eighth the cost of the methods previously used. The well known disadvantages of thymol, its cost, occasional toxicity, and the necessarily elaborate preparation of the patient have led to an endeavor to discover some more practical drug. Chenopodium has been used with good results, but Hall's reports indicate that carbon tetrachlorid in doses of O.3c.c. per kilo of live weight is an anthelmintic of great potency when used on dogs. He reports that when administered in hard gelatin capsules after an eighteen hour fast and without previous purgation, it is equally efficacious in removing Ascarides and Strongylus from horses and swine. In a series of therapeutic tests on Fiji coolies, he is reported to have been able to remove 98 per cent of the hookworms with a single dose of carbon tetrachlorid without untoward symptoms. It is highly probable that the dosage for human beings is considerably less than that to be employed on animals.

Prevention of Measles.—Years ago Munson in his "Military Hygiene" reported his observations in the prevention of measles by the injection of serum removed from the blisters artificially induced on convalescents. Curiously enough, this work has been lost sight of, probably because Munson did not carry it further. Degkwitz in a recent issue of *Bulletin et memoires de la societe medicale des hôpitaux de Paris*, has stated that as small a quantity as 3c.c. of serum from recent convalescents will prevent the development of the disease. He further states that injections done up to and including the sixth day after exposure will protect, but after the seventh day such injections neither prevent nor modify the disease. Doses smaller than 3c.cm. injected before the seventh day after exposure lengthen the period of incubation, shorten the course of the disease, and prevent secondary complications. This work merits confirmation and further extension.

Bacteriological Diagnosis of Mild Plague.—The difficulty in diagnosing ambulatory or very light cases of bubonic plague is sometimes a considerable handicap to the sanitarian. It has been recognized for a number of years that Yersin's bacillus is present in the blood stream very early in the disease in practically all cases and it may be recovered and recognized by appropriate blood cultural methods. This is of great importance, since the punctured bubo does not always yield bacteria and a negative result does not by any means indicate that the case is not one of plague. While a missed case is not as grave a matter in a plague epidemic as it might be in a typhoid outbreak, it is a serious fault since all human foci should be discovered in order that eradicative operations may be accurately directed. A practical method of diagnosis consists in making a blood culture. If a good sized sample of blood (50 to 100 c.c.) is taken from the patient under aseptic precautions, planted in one and one-half times its volume of peptone bouillon, incubated at 25 degrees centigrade, and the usual technic of determining the plague bacillus carried out, cases which otherwise would pass undiagnosed will be discovered.

The Amelioration of the Deaf.—The health officer who views his profession with broad-angle vision realizes that the perimeter of his operations does not simply circumscribe the infectious diseases, the correction of nuisances, the control of foods, and the collection of vital statistics. His work includes as well every phase of human existence and every circumstance of mind and body which lower human efficiency and longevity. Thus everything in human life from the prenatal stage to old should pass within his purview.

From this conception of the wide scope of his functions, the amelioration of the condition of the deaf or partially deaf becomes a part of his duties. Such persons are an economic hazard to the community and their lot is frequently very sad indeed. The organization of the hard-of-hearing into leagues for mutual aid has met with considerable success in several large cities. The purpose of such organizations is the inauguration of classes in lip reading, the formation of social clubs, and employment assistance. Such leagues are not only of tremendous benefit to the unfortunates by their education, they also form a social outlet for a group whose infirmity to a certain extent encloisters them. To the health officer they are a valuable aid, and should therefore be encouraged.

The Mechanism of "Catching Cold."—It is a widespread observation of long standing that chilling and wetting of the body produces a series of physical changes ranging from a mild coryza to a severe pneumonia, but the scientific proof of the mechanism by which this occurs has until recently been lacking. It is now known, according to Mudd, Grant and Goldman, in the March, 1921, issue of the *Annals of Otology, Rhinology, and Laryngology*, that many of the potentially pathogenic bacteria lead a saprophytic existence on the mucous membranes of the upper air passages and that under appropriate conditions they produce an active infection of the body. The chilling of the body surface causes a reflex vaso-constriction and a resultant ischemia of the mucous membranes in which these organisms may be resident, thus lowering the activity of the protective properties of the lining membranes of the nose, palate, tonsils, and pharynx and establishing a portal of entry for bacteria. Conversely, the air of hot, dry crowded rooms causes an engorgement of these membranes and favors coughing and sneezing, the acts by which the infectious material may

be spread from person to person. A subsequent chilling constricts the surface blood vessels of the swollen membranes and hence favors infection.

There is no more important phase of health officer's work than in educating his clientele in the means of preventing colds, since they are so frequently the precursors of serious infections and hence are such a great economic hazard to the community. Recognizing the mechanism of "catching cold," makes it relatively easy to formulate the advice to be given to that end, yet care should be observed lest an unwarranted fear of draughts and exposure be induced and it should be borne in mind that a regimen of life suitable for the robust might be very harmful to puny individuals. Out-of-doors life and the following of a sane sanitary existence are to be insisted upon, as are also good ventilation, the avoidance of over-crowding, and the proper treatment of any ailment or abnormality of the upper air-passages. The overheated house, the dusty public conveyance, the irritating smoking room, and the "dead-air" theater are to be shunned. Exercise and cold bathing in proportion to individual physical fitness are to be recommended.

Problems in the Bovine Tuberculosis Question

The Metamorphosis of Types Offers an Interesting Field for Investigation

By J. HOWARD BEARD, University Health Officer, University of Illinois, Urbana, Ill.

Tuberculosis is not a provincial problem of a species, but a world wide one, co-extensive with the animal kingdom. The veterinarian, in his study of the disease, must run the biological scale from the lowly blindworm to the anthropoid ape. The physician, in his endeavor to comprehend the "acid-fasts," must descend the ladder of animal life even unto the lizard. He and the veterinarian will meet at many points to join hands in search of the secrets of Nature essential to the prevention of the great economic loss and to the limitation of suffering in man and in beast from tuberculosis.

AMONG bacteria is found a group of bacilli whose strains are characterized by their like ability to retain the dye when stained with carbolfuchsin and subsequently treated with dilute mineral acids. They differ, but their difference is more quantitative than qualitative. Animals, sensitized to one strain, exhibit partial immunological reactions to the other types, indicating that, chemically, at least, the cell structure of the organisms of the various forms are similar.

The great majority of the "acid-fasts" are saprophytes, but certain strains, of which the human, bovine, and avain tubercle bacilli are the most distinguished representatives, are parasitic. Others are harmless, but may acquire pathogenicity. For example, *B. subtilis* is usually a saprophyte, but it may become a secondary invader of wounds or give rise spontaneously to inflammation of the eye.

A form of "acid-fast" organism causes disease in the blindworm. Fish, particularly carp, may become infected by a member of this group, which is also able to kill frogs. It also produces tubercles in snakes, lizards, and turtles. The pathogens of the "acid-proof" organism attack most frequently and most vigorously warm-blooded animals in captivity or those that are housed. Their strains produce specific chronic enteritis and tuberculosis in cattle. Their types cause leprosy in both man and rat. They produce phthisis in man, beast, and bird.

Whether or not all the strains of this great class of bacteria have a common ancestor and are modifications of the same organisms produced by environment, offers an interesting field for speculation. Whether or not one virulent type may be transformed into another awaits a conclusive demonstration. Certain investigators have asserted their ability to transform mammalian strains into the cold-blooded types by passage through blindworms or through frogs. They also claim to have changed the bacillus of fish tuberculosis by culture and by injection into animals until it has become highly virulent for mammals. Many observers believe certain saprohytic "acid-fasts" may be trained to parasitism and develop ability to cause local lesions, but not to produce generalized tuberculosis.

In trying to convert types, the human and avian forms have been passed through many cows; the human and bovine through many chickens. Nocard placed a culture of the human type in a collodion sack and introduced it into the abdominal cavity of a chicken. At intervals of some weeks he transferred the sack to a second and then to a third chicken. After this he found the type had changed to avian. His work has been both confirmed and denied.

Raw subcultured strains of human, bovine, and avian tubercle bacilli on artificial media containing glycerin for twelve years, all retained their characteristics and selective appearance, and were readily identified as distinctive types. Animals injected with culture of nine years' attenuation showed no ill effects. In no case did tuberculous symptoms develop; post-mortems were negative. All types lost their ability to attack the tissues of animals for which they had previously a predilection. They were apparently saprophytes.

Some experimenters convince themselves that transformation of one type into another is a simple procedure; others, equally competent, repeat their work and feel certain that metamorphosis never occurs. In the presence of such contradictory results, the proper attitude is one of wholesome but thorough skepticism.

Bovine Tuberculosis

Tubercle bacilli found in man and cattle usually fall into two groups designated as human and as bovine. Their differences on media and in virulence to certain animals place the two varieties at extremes with a few strains of each showing variant characteristics. The difference of these two types is probably stable because of long residence in different hosts.

Human tuberculosis is mainly a man to man infection through sputum. Pulmonary phthisis caused by

the bovine organism is rare. It occurs about once in every two hundred cases collected from the literature in which the strains of bacilli found in the sputum have been studied. Bovine tuberculosis in man is pre-eminently a disease of childhood. Its incidence tends to increase inversely with the age of the child. In children, 23.8 per cent of generalized tuberculosis, 40 per cent of tuberculosis of the cervical glands, and 49 per cent of abdominal tuberculosis are due to the bovine type.

At all ages the bovine variety causes 5 per cent of the disease of bones and joints, 10 per cent of the tuberculosis meningitis, and 5.5 per cent of generalized tuberculosis, 25 per cent of the enlarged lymph glands, and 30 per cent of the tuberculosis of the abdominal organs. The bovine variety disfigures and cripples. It brings its victims to many serious operations and kills about 11,000 persons in the United States annually.

Avian Tuberculosis

Avian tuberculosis is one of the most common diseases with which the poultry raiser has to contend. Fowls particularly, and also pheasants, turkeys, pigeons and wild birds in captivity suffer from the disease. Ducks and geese are relatively exempt.

The pathogenicity of the avian bacillus for mammals is low, but the more recent evidence shows it is more frequently the cause of disease than was once supposed. Guinea pigs, which are highly susceptible to human tuberculosis, possess considerable immunity to tuberculosis gallinaceus. Rabbits, though resistant to human strains, succumb readily to the avian variety. Rats and mice develop the disease spontaneously from the avian form.

The English Commission found that the avian tubercle bacillus caused nonprogressive tuberculosis in hogs. Mohler and Washburn were able to infect swine by feeding avian tissues to them. Hastings, Halpin, and Beach found tuberculosis cervical and mesenteric glands in hogs fed upon such tissues six months before. Whether the avian bacillus can produce extensive tuberculosis in hogs is best decided after further investigation. It is able to cause condemnation of a part if not the entire hog, and to this extent assumes greater economic importance. Calves, goats, and colts fed on the avian bacillus may develop lesions in the intestines and mesenteric glands. Subcutaneous injection in cattle produced a local reaction, but no generalized tuberculosis. The ability of the avian bacillus to ascend the biological ladder and cause tuberculosis in man is of great interest. Rabinowitch and Plimmer have reported this type of infection in monkeys that have died in captivity. Several German authors, notably Lowenstein, have described cases of tuberculosis gallinaceus in man. The mesenteric glands were usually involved. In two cases the kidneys were infected and a mild septicemia was present. Both reacted to avian tuberculin only and became afebrile after treatment and remained so.

Tuberculosus fowls undoubtedly reach the table. The emaciation and striking appearance of the organs, particularly of the liver, greatly reduce the consumption of markedly diseased fowl. The usual methods of cooking probably kills all organisms. Infection may follow the eating of eggs of tuberculous hens, since their eggs may contain a large number of bacilli. Certain of the more common methods of cooking will not destroy all of the bacteria. There is little reason to believe this strain of the tubercle bacillus plays an important role in the production of human illness and mortality.

Both the bovine and the human bacillus are capable of attacking man indirectly through many species of animals. Rothe has described rapidly fatal spontaneous tuberculosis in rabbits, due to the bovine bacillus. Rats, mice, and guinea pigs may acquire the disease from either source.

Tuberculosis Secondary in Man

Certain French observers believe tuberculosis to be very common among cats and dogs. Cats get the disease from eating tuberculous milk, raw meat, or from association with phthisical patients. While the disease commonly attacks the mesenteric glands, cutaneous lesions in the region of the throat or breast are not uncommon. Griffith obtained the bovine organism from the mesenteric glands, pleural fluid, and muco-pus from the trachea of a cat, dead of tuberculosis. This animal suffered from a frequent short cough many weeks before its death. Cats that are emaciated, that cough, have diarrhea, or ulcers about the face or neck which do not heal readily should be regarded with suspicion.

Tuberculosis in the dog is not rare, particularly in those closely associated with tuberculous owners. Raw meat or unboiled milk may also be a source of infection. Petit reports its frequent occurrence among dogs owned by restaurant keepers in Paris. He attributes the disease to ingestion of sputum from spittoons. Tuberculosis in dogs may be well advanced before being suspected, and for this reason offers a special menace to their masters. A chronic cough or obstinate ulceration of the skin should cause a dog to be watched.

Parrots and canaries are susceptible to human and bovine tuberculosis. They may acquire the disease from patients. Friedburg and Frohner believe that infection in parrots is commonly an inhalation disease due to human bacilli, but that it may be acquired through food also. With these exceptions, birds are strongly resistant to mammalian tuberculosis.

Equine Tuberculosis Rare

Equine tuberculosis is rare. As a source of human infection it has academic rather than practical interest. The same is true of phthisis in the donkey and in the mule. Foals fed upon cow's milk or horses kept with tuberculous cattle may acquire the disease. The horse may be infected with either the human or avian bacillus, but the bovine variety is usually the cause of the disease.

Both sheep and goats are reputed to have considerable resistance to tuberculosis. This appears to be due to living conditions more than to natural immunity. The ratio of the infected to the normal in sheep is about one in five thousand. The rarity of the disease is due largely to outdoor life and lessened opportunity for infection. Where goats are kept alone the disease is rare; when they are housed in groups or with cattle it occurs. Both the sheep and the goat have tuberculosis when inoculated with the bacillus.

Of the hogs slaughtered in the United States under Federal inspection, 65,838 or 0.15 per cent were condemned on account of tuberculosis during the fiscal year 1919. Approximately 65 per cent of the animals killed in this country are slaughtered at abattoirs under Federal inspection. In the remaining 35 per cent, tuberculosis is probably higher than in the swine sold to come under inspection. In the German slaughter houses from 2 to 4 per cent of the pigs are tuberculous; in Denmark, from 10 to 14 per cent. The human and avian tubercle bacillus may produce tuberculosis in hogs, but the bovine variety, in the great majority of instances, causes uninspected, uncooked pork to be a source of infection to man.

Less than twenty-five years ago,

the great Koch stated that "human tuberculosis differs from bovine and can not be transmitted to cattle." As to susceptibility of man to bovine tuberculosis, it was not absolutely decided, but one was "nevertheless, already at liberty to say..... the infection of human beings is a rare occurrence." He had hardly finished his pronouncement before confronting two horns of a dilemma. He had either to retract or to admit the great mass of evidence of many able investigators was out of harmony with his statement. The passing years have confirmed his error.

Research and experience have shown a closer relationship, not only between the human and the bovine bacillus, but between other members of the "acid-fast" group. The thin partition of slight variation in morphology, the amount of growth on glycerin media, and difference in virulence to rabbits and to calves, in the presence of so-called atypical forms of each strain which closely approach the biology and morphology of those of another, have proved insufficient to prevent questions concerning metamorphosis of types. The avian, bovine, and human bacilli are within certain restrictions capable of producing lesions reciprocally though not always typically.

Difference of variety is probably the result of long continued sojourn in the bodies of different animals subject to their body fluids and temperatures. Today the majority of observers hold types are stable because of long residence in different hosts. Tomorrow it may be necessary to accept the view that characteristics of types are slowly labile.

Tuberculosis is not a provincial problem of a species, but a world-wide one, co-extensive with the animal kingdom. The veterinarian, in this study of the disease, must run the biological scale from the lowly blind-worm to the anthropoid ape. The physician, in his endeavor to comprehend the "acid-fasts" must descend the ladder of animal life even unto the lizard. He and the veterinarian will meet at many points to join hands in search of the secrets of nature essential to the prevention of great economic loss and suffering.

Foot Fitting is a Science

By H. A. MEYER, H. A. Meyer Shoe Company, Chicago

WE HEAR a great deal about the evils of "shopping around" for medical service and of the ease with which such "shoppers" become the dupes of quackery and charlatanism in contrast with the safety of reliance upon dependable men and demonstrated method. In view of the fact that the feet demand the same discriminating attention that is accorded the rest of the anatomy, it is surprising with what breezy irresponsibility the general public shops around for shoes and with what indifference they disregard the fundamental principles of foot fitting. Fitting feet is the essential thing, and its achievement involves a high degree of scientific knowledge together with a generous measure of good common sense on the part of the shoe salesman. There are multitudes of shoe fitters, but when you do finally find a man who really knows how and takes the trouble correctly to fit your feet, stick to him. Really to achieve foot-fitting, men cannot receive their training academically. They must get it through careful, everyday study of feet, and a thorough, practical understanding of the definite sort of last and pattern needed correctly to fit a distinct type of foot.

The intelligent attention which the American shoe designing, shoe making, and shoe retailing trade have given this subject in recent years has evolved standards of correct and corrective shoe construction and of foot fitting which a few years ago were not even known to the shoe fraternity. We have got down to fundamentals and have learned actually to fit feet through the building of shoes in many and varied types and combinations of measurements. These principles are being applied to correct the errors which resulted from the older way of thoughtless shoe selling.

For every normal or nearly normal foot everyday foot comfort is now made available to those who desire it. There are three general types of feet into which the great majority of men's feet may be grouped: (1) the relatively high, well knit, fully developed arch, the foot which through proper care, exercise, and well adapted shoes has had a fair chance to function fully; (2) the more prevalent type of foot in which arch trouble in some degree has become established and is the fruitful cause of unwarranted fatigue from muscular strain and lax ligaments; these feet can in most cases be "brought back" by common sense care, a reasonable amount of suitable exercise, and the right type of shoe; (3) the flat foot which in extreme cases calls for the guidance of a foot specialist or orthopedist in fitting. No retail shoe man should take it upon himself to prescribe a shoe for an extreme case of this kind. A correlation of skill, professional and practical, is called for in order to produce comfort for these "patients."

The difficulties formerly encountered in finding adequate shoes for the many varieties of feet were largely overcome when the shoe manufacturer varied his combinations of lasts and patterns on the basis of actual foot measurements on a wide scale and it is now possible to obtain varied types of shoes, all conforming to correct anatomic principles. The contribution of the retail shoe man and of the shoe salesman toward shoe comfort lies in the consistent observation of the types of feet represented by their clientele so that it is possible to maintain a complete, appropriately balanced assortment. A by-product of this observation has been the development of an ethical sense if you please, which holds them to actual fitting of feet instead of the mere selling of shoes. For it is now well understood that it is risky and poor business method deliberately to sell a misfitted pair of shoes. The ethical shoe man is honest about it and, if his stock is lacking the particular type of shoe needed, the customer is made aware of the fact and asked to try again

(1) Don't try to wear impractical shoes for practical service.

(2) Don't use snap judgment in the selection of the place where you buy your shoes. Scientific foot-fitting is not usually practised in shoe "cafeterias."

(3) Don't fail to bear in mind that your one pair of feet must serve you a life time.

(4) Don't tell your shoe salesman what size you wear. Make it his business to fit your feet.

(5) Don't foolishly allow "eye-style" to supersede common foot-sense when buying a pair of shoes.

(6) Don't sacrifice your comfort by requiring a foot-fitter to do impossible things. Vanity and foot-fitting are far removed.

(7) Don't buy price in buying shoes. It is only relative, while good, honestly made, comfortable shoes are always an economy.

A Course in Personal and Community Hygiene

Syllabus of a Lecture Course for Freshman University Classes

By ROBERT T. LEGGE, Professor of Hygiene, University of California, Berkeley, Cal.

AFTER many requests from educators in various institutions of learning for an outline for a regular one semester, two unit course, consisting of twenty-eight lectures on Personal and Community Hygiene, the following syllabus was compiled to offer some solution to standardize such an academic course.

Instruction should be as practical and definite as possible, fully illustrated by charts, models, and lantern demonstrations, as well as to be supplemented by readings, sections, and conferences. Two mid-terms and a final written examination should be required to pass the course.

As the majority of our universities and colleges possess military units, it becomes necessary to offer prescribed military hygiene, which has been applied in relation to the respective headings.

In the event that the syllabus is to be used in women's or co-educational colleges, it is recommended by my colleague Professor Ruby L. Cunningham, that such lectures marked by an asterisk (*) be substituted by the outline of lectures found under addenda.

Lecture I

General Introduction. — Definition of Hygiene and Sanitation—Ancient ideas and beliefs of disease—Mosaic Laws—Early Christians—Era of Pasteur—Modern conception and development of the Science of Medicine and New Public Health in contrast to the Old—Relation to military campaigns—Our duty in preventing disease, respecting health laws and scientific medicine.

Note: If a student's Health Service is established on the campus its purposes may be discussed.

Lecture II

Parasitism and Germs.—Mistletoe on plants and vermin on animals not necessarily fatal to host—Bacteria discoveries by Leuwenhoeck, Pasteur, Koch and Lister—Pathogenic and non-pathogenic bacteria—Structure—How they reproduce—Types—Spores and Toxins—Rôle played in disease—Protozoa, fungi and filterable viruses.

Lecture III

Source and Mode of Infection.—Rôle in infection played by animal and vegetable parisites—Short life of disease germs outside of body—Portals of entry into body—Contact not air borne—Relation of focal infections—Droplet infection—Water, Milk, Food, Insects, Prostitution, Dressings and Human Discharges.

Lecture IV

Immunity.—Explanation of Immunity—Vital resistance—Different kinds, natural, active and passive—Examples—History of vaccination—Jenner—Typhoid vaccination—Value in army—Antitoxin—Diphtheria immunization—Schick Test—Toxin and antitoxin — Rabies — Phagocytosis — Anaphylaxis.

Lecture V

Carriers and Contacts.—Importance of recognizing early stages of disease—Missed or mild cases—Contacts—Control by laboratory means—Isolation—Periods of incubation—Carriers—Types—How they infect—Control—Tests for disease.

Lecture VI

Rôle of Insects in Disease (Mosquitoes).—Types and differentiations—Malaria and yellow fever—Death of Lazear—Mosquito control.—*Flies:* Breeding places—Control—Diseases carried.—*Lice:* Kinds—Typhus and trench fever—Death of Ricketts—Delousing in army.—*Fleas:* Rat—Plague—Methods of extermination.—*Intestinal Worms:* Prevention.

Lecture VII

Skin.—Anatomy and physiology of skin—Heat mechanism—Relation of cold, heat, exercise, diet and clothing—Cleanliness misleading for disease prevention—Importance of bathing—Prevention of the common skin diseases—Hair, nails and mucous membrane.

Lecture VIII

Exercise and Rest.—Physiology of exercise—Effects of exercise on muscles, skin, heart and lungs—Results of lack of exercise—Benefits derived from exercise—Special exercises for constipation and postural correction—Kind and time for exercise—Army setting up exercises and marching—Causes and effect of fatigue.

Lecture IX

Clothing and Housing.—Hygiene of clothing—Materials—Physical properties, wool versus cotton—Ill effects of tight garments and coddling—Under and over garments.

Housing—Regulations as to cubic feet air space in army and industry—Overcrowding—Ventilation, illumination, sites, etc.—Relation to tuberculosis.

Lecture X

Feet and Shoes.—Normal foot—Contrast with infants—Muller's line—The arches—Munson army shoe vs. pointed and high heeled shoes—Army methods of shoeing troops—Correct position in standing and walking—Flat feet, correction and exercise—Stockings—Deformities: corns, warts, bunions, sweating feet, blisters, broken arches, hammertoes and ingrowing nails—Chilblains and frost bite.

Lecture XI

Oral Hygiene.—Teeth—Deciduous and permanent—Explanation of a cross section of tooth—How caries is produced—Preservation of the six year molar—X-ray in dentistry—Dental focal infections—Necessity of removal of hopelessly decayed teeth—Bad effect of over-dentistried teeth—Need for prompt filling of caries—Pyorrhea—Importance of proper occlusion—Cleanliness of teeth—Mastication of food.

Lecture XII

Food.—Sanitation of foods—Pure food movement—Dangers of food handling by human contamination—Carriers—Diseased meat—Food poisoning—Botulism—Food allergy—Vitamines—Diseases due to lack of same—Malnutrition in children—Factors: physical defects, insufficient or improper food, food habits, fatigue, poor home hygiene—Behavior of food substanced as fat, carbo-hydrates, proteins and salts, iron—Functions of each.

Lecture XIII

Food (Continued).—Physiology of digestion and metabolism — Calori-

metry of foods—Engine vs. human machine—Well balanced diet—Army ration vs. millionaire's—Psychology of cleanliness, flavor and cooking—Production and preservation—Diseases carried.

Lecture XIV

Hygiene of Special Senses.—Normal eye—Accommodation—Eyestrain and its causes and prevention—Different types of errors of refraction and their correction—Muscle insufficiency—Hygiene of light — Ears—Cause and prevention of defective hearing—Foreign bodies—Discharging ears—Effects of diseased tonsils and adenoids—Speech defects.

Lecture XV

Mental Hygiene.—Importance of emotions—Instincts and heredity—Psychic disturbances of adolescence—Control of the moral sense—Conservation of nervous energy—Prevention of "nerve leaks"—Overcome emotional disturbances, sexual perversions, social irritation and high tension—Agencies that improve the nervous system.

Lecture XVI

**Sex Hygiene.*—The phyletic activities—Period of puberty—Physical changes and psychical changes—Internal and external secretion of the testes— Reproduction— Masturbation —Emissions.

Lecture XVII

**Sex Hygiene.*—Sublimation of sex thoughts, imaginations and desires—Continent life and the single standard of morality—Penalities of illicit sexual intercourse and the end results of sowing wild oats.

Lecture XVIII

**Venereal Diseases.*—Nature's retribution for illicit sexual immorality — Gonorrhea — Acute symptoms — Chronic stage—Effects on organs—Innocent wife and child—Eyes—When is a person cured?—Chancroid—Syphilis—Symptoms—Danger of active lesions and chronic stages—Wasserman tests—Prophylaxis in army—Suppression of prostitution and segregated districts.

Lecture XIX

Water Supply.—Its relation to life — Sources — Physical properties — Hard and soft water—Role of saphrophytes—Methods of municipal purification—National agents—Chemical, sand filter, storage and sedimentation —Water-borne diseases—Methods of testing water—Wells—Prevention of pollution and testing—Swimming pools—Treatments—Bathers requirements — Bubbling fountains — Tin cups.

Lecture XX

Waste Disposal.—Old Ideas—Distinction between litter and waste—Garbage—Manure—Incinerators: field and municipal methods—Dangers of human feces on ground—Stream and well pollutions—Hookworm—Sanitary privy and army latrines—Pail system —Description and explanation of the septic tank—Modern plumbing—Modern sewerage—Sewer gas—Sewerage disposal and methods of treatment.

Lecture XXI

Air.—Composition—Outline physiology of respiration—Pettenkofer's idea of increase of CO_2 not practical —Effect climate and season—Temperature—Humidity—Sewer gas fallacy —Physical factors—Air currents—Drafts—Crowd air, odors, and dust—Pathogenicity of dust practically nil —Industrial processes: fumes, gases and dust—Methods to take test temperature, humidity, and air currents —Effects of rarified air in mountain climbing and aviation—Army cubic feet requirements.

Lecture XXII

Ventilation and Heating.—Changes of air produced by presence of human beings—Effect of high temperature and humidity on the body and peripheral parts—Diminution of oxygen or the increase of carbon dioxid or organic matter as odors, dust and bacteria—Importance of air currents—Research conducted along these lines —Hill, Lee, and Kimball—Accepted standard: cubic feet per minute, velocity, temperature and saturation —Mechanical ventilation and heating —Cross window ventilation—Jacketed stoves, fire places, steam and hot air furnaces.

Lecture XXIII

Boards of Health.—Aims and purposes — Personal —Vital statistics — Areas, classes, and causes of good and bad community health conditions—Determining death and birth rates—Recording certificates—Comparison of morbidity and vitality in rural and urban districts—Sanitary engineering —Epidemiologist and Public Health Laboratory: their respective functions— Public Health Nurse—Federal Public Health Service—Red Cross and other agencies.

Lecture XXIV

Tuberculosis.—Cause of the disease —Prevalence—Varieties of the disease—Disease an infection of infancy —Building up resistance—Checking by milk pasteurization and care of sputum, careless consumptive—Housing and industrial conditions—Benefits of sunlight, fresh air and hopefulness of early treatment when incipient signs appear—Von Pirquet's reaction—Early signs of the disease —Tubercular testing of dairy cattle —Social machinery, education, sanatorium, preventorium, clinics, Red Cross Stamps—Individual's responsibilities.

Lecture XXV

General Public Health Campaign—Control of communicable diseases—Infant mortality: its causes and prevention—Pure milk and food—Rural versus urban conditions—Reasons for the greater mortality, morbidity and physical defects in rural districts—Remedy—Necessity of school supervision and sanitation.

Lecture XXVI

Isolation and Disinfection.—Old conception of quarantine—Newer public health of isolation and disinfection—The relative slight importance of fumigation—Asepsis and antisepsis—Sterilization—Pasteurization—Its application to the departments of public health, medicine and surgery.

Lecture XXVII

**Military.*—Necessity of instruction —Selection of recruits: age and height—Causes of rejection—Sanitation of camps—Latrines—Waste disposal—Stables and mess houses—Location — Improvised incinerators, showers, fly traps, etc.—Fly menaces —Camp diseases.

Lecture XXVIII

Degenerative Diseases.—How can longevity be increased—Span of life at present—Important diseases, viz.: arteriosclerosis, heart and kidney diseases—Significance of high blood pressure and urinary examinations—Effects of overstrain, nervous excitement, overeating, autointoxication, focal infection, syphilis and alcohol—Prevention: importance of medical examinations, diet, exercise, and rest —Avoidance of constipation, chilling, and diet rich in purin bodies.

Addenda

The following lectures may be substituted for those marked with an asterisk.

First Aid.—What to do until the doctor comes—Dressing of wounds and use of antiseptics—Types and control of hemorrhage—Application of tourniquets—Shock and fainting—Applying of splints to fractures—Burns—Rescue methods—Prone pres-

sure method of artificial respiration—Prevention of accidents.

Reproduction.—Types of reproduction found in plants and animals—Examples of the various types with a consideration of their advantages and disadvantages—Morphology of plants and anatomy of animals necessary to the consideration of reproduction with especial attention to the anatomy of the pelvic organs of women—Human reproduction—Development of the embryo and fetus—Parturition.—Menstruation, normal and abnormal—Hygiene of the menstrual period.

Adolescence and Secondary Sexual Characteristics.—Anatomical, physiological, and mental changes occurring during puberty with especial consideration to adolescent psychology—Impulses for self-preservation and for race preservation—Normal and abnormal direction of these impulses.

Text and Reference Books

Human Mechanism, Hough and Sedgwick
How to Live, Irving and Hall
Home and Community Hygiene, Broadhurst.
Health and Disease, Lee
Reproduction and Sexual Hygiene, Hall
Sex Factor in Human Life, Galloway.

Radium—Its Sources and Uses

By EDWARD L. BERNAYS, New York City

RADIUM, the most mysterious and powerful element known to science, has in the past decade taken its place as one of the valuable therapeutic agents. As a method of treatment in the case of cancer and other malignant fibroid growth, radium has demonstrated its great value both actively and passively, in that it frees the patients from a fear of the knife which in many cases deters them from applying for medical aid until the growth has reached an advanced and incurable stage.

Radium is mined chiefly in America. It is derived from carnotite ore found largely in the Undark mines of Colorado and Utah. The ore from which it is derived contains merely minute particles of the substance. Two hundred and fifty tons of ore treated with an equal amount of chemicals and water yield but one milligram. The ore is found in narrow seams of the ground and is sorted and packed in one hundred pound sacks and is transported sixty miles to the nearest railroad, on the backs of burros and mules. It is then shipped in carload lots 2,900 miles across the continent. One of the largest of the extraction plants is that of the United States Radium Corporation at Orange, N. J.

In appearance radium is a whitish substance somewhat like common salt, with a white metallic lustre. Radium is originally obtained from its ores in the form of hydros sulphate, chlorid, or bromid, and it is usually sold and used in the form of these salts. These are all white or nearly white, substances. Radium cannot be seen even with the microscope in its natural state. It is formed by the decay of uranium, an exceedingly slow process. Radium itself decays and changes to other elements, but it takes 3,600 years to effect the change.

In addition to the therapeutic uses of radium, it has been linked up definitely with the safety movement, in that when combined with zinc sulphide, it becomes luminous and makes a sure and warning signal for danger spots in the dark. Its value in lighting up, as an undark luminous material, dangerous corners in mines, power switches in plants and factories, and even in such common and household uses as illuminating poison bottles so that they cannot at night be mistaken for medicine, has been proven a success.

Radium has power to destroy all tissues and bones. In this power lies its great therapeutic value, because by proper application it can be used to do no harm to healthy tissues, while it destroys unhealthy tissues and malignant growths.

The discovery of radium as a therapeutic substance was an accident. M. Henri Becquerel was affected by a piece of radium which he had in his pocket. From the analysis of the sore with which he reviewed has grown the science of radium therapy.

In therapeutic treatment, radium is used usually in salt form, generally the bromide. This is enclosed in a glass capsule. The alpha rays and some of the beta rays are shut off, as these sometimes result in erythemic eruptions of the skin and serious burns. The glass capsules are often enclosed in a metal applicator or a tube of platinum, lead, gold, silver, or brass. A rubber tube eliminates secondary rays. The action of radium is to lower the vitality of diseased tissue and to invigorate surrounding structures. It has been found of particular value in cancer of the skin,

Radium in the process of extraction. In the plant of the United States Radium Corporation at Orange, N. J. In the large vats are contained strong acids and chemicals in which the carnotite ore is reduced to the pure form and finally to the radium salt.

especially on the face and around the eyes, and alae of the nostrils. Cancer of the uterus has been treated with great success. Various glands of the body have also yielded readily to treatment, especially tuberculous glands which have not yet suppurated. Papilloma of the skin, warts, etc., have been treated successfully with the application of approximately ten milligrams.

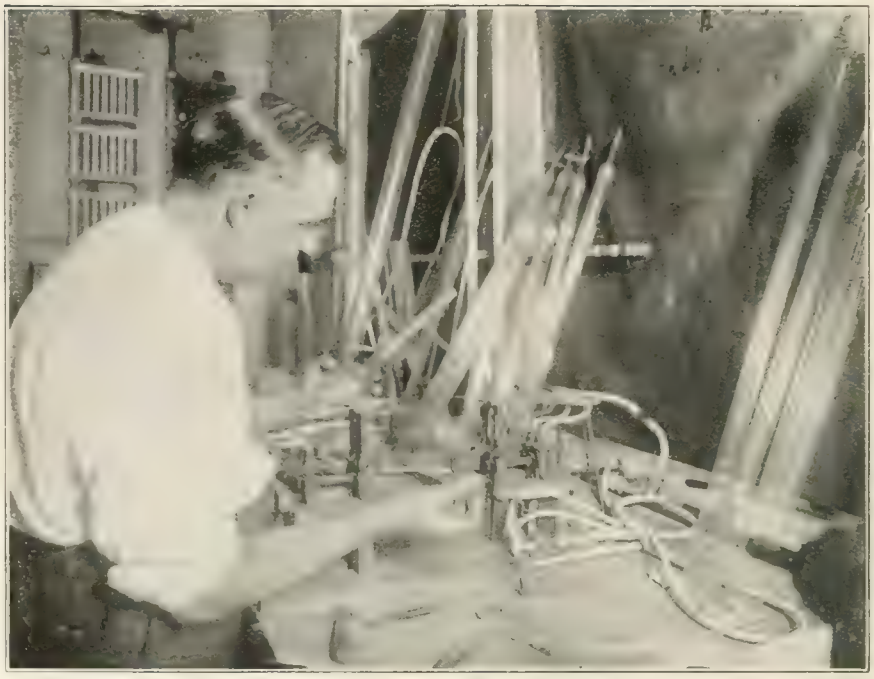
Radium emanations are used extensively in place of the radium itself. The emanations are in the form of gas artificially made from a solution of radium salts, or they may be secured from natural radium springs. Radium emanation is reliable therapeutically; it stimulates normal cell life and destroys pathogenic bacteria. It is said to increase the hemoglobin and is tonic to the entire nervous system.

Chemically analyzed, radium has an atomic weight of 226.5 and is classified as one of the alkaline earths. In its natural process of disintegration it endures for about 3,600 years. Atomically it is highly concentrated.

The rays given off at the moment of the explosion of the radium atom are the alpha, beta, and gamma rays. The alpha rays consist of minute particles of matter charged with positive electricity and travelling at the rate of 20,000 miles per second. Their penetration of the air is only three inches approximately. Beta rays given off during the explosion of the radium atom are composed of negatively charged atoms. Their velocity is one hundred thousand miles a second. The gamma rays are, it is said, vibrations of the ether. The radium emanation is brought into existence through the eruption of the radium atom and is a gas. For therapeutic purposes it is compressed in needles or cylinders. So great is its power that one gram of radium contains sufficient energy to raise a dreadnaught battleship one hundred feet in the air. There are in the world today three ounces of radium.

The development of radium mining has been exceedingly rapid in the past decade. It is probable that new radium deposits will be found constantly. Already more radium has been taken out of the carnotite district than the most competent authority predicted would be found there. Originally radium was secured from pitchblende in Austria. Now almost the entire product of the world comes from the United States.

Radium deposits have also been discovered in Argentine, in England, in Canada, in Portugal and in Russia. There is every reason to believe that available sources of supply will be increased greatly and that there will come the development of radium extraction from ores other than carnotite. The radium supply of the world is so promising that its use should not be limited to the treatment of cancer and allied diseases, but also for the preparation of undark luminious material which makes possible the greater development of the radium industry. It is valued at $3,260,000 an ounce.



Test tubes and other chemical apparati are utilized in the extraction processes, as the forms reduced from the ore become simpler and simpler.

Toronto School Health Service

THE method of administrating the medical inspection of Toronto schools is described in The *Public Health Journal* by Eunice H. Dyke, Director of Public Health Nursing, Department of Public Health, Toronto. The close relationship of the school health service with other community services is secured through the coordinating agency of the City Hall. Eight district offices of the Department of Public Health have been found to be necessary to serve a population of 525,000.

Each district office is in charge of a superintendent of public health nurses to whom the field nurses of the district report at noon. The nurse, responsible for the nursing service in the schools, is one of the five special supervisors who are responsible to the director of public health nursing for the development of certain branches of nursing.

The school population of Toronto is approximately 85,000, accommodated in 92 public and 28 separate schools; 2,147 teachers, 13 doctors, 26 dentists, 84 nurses, and 25 dental assistants are employed in these schools. The Department of Public Health for the last four years has provided health service for the Board of Education and the Separate School Board.

Three aims for health service in the schools set forth by the supervisor of school nursing are: (1) control of communicable diseases; (2) correction of defects; (3) health education.

A step in the direction of education and prevention is demonstrated in the increasing number of health talks the public health nurses have been able to give. In the school year 1919-20, the public health nurses in Toronto recorded 64,000 treatments given to school children and only 2,800 health talks. The following year treatments were reduced to 28,000 by a skilful shifting of responsibility upon the mothers and health talks increased to 5,000 in addition to which many more were given by the teachers. The service aims rather to examine and refer to clinics or physicians than to give specific treatment.

Baltimore's Public Laundries

FOR twenty-one years Baltimore has run in connection with its public bath houses public laundries in which the housewife from the tenements may do her family washing or the odd job man wash the clothes on his back. The story of the success of the Baltimore laundries is told by Robert F. G. Kelley, secretary and superintendent, Free Public Bath Commission, Baltimore, in *The American City*.

Public laundry at Walters Baths No. 1, Baltimore, where men may wash their clothes for a few cents. During the past year 7,000 men took advantage of the laundry's facilities.

Located in the center of a thickly congested foreign district, the first bathhouse was open at first four days to women and two days to men, but as more and more men came to take advantage of the laundry facilities and the type of population of the neighborhood changed, in 1920 it was made exclusively a laundry for men. During that year, the laundry had a patronage of 7,000, while in the unemployment period in the early months of 1921, the patronage totaled 3,875.

The men who take advantage of the bath and laundry are often oyster dredgers up from a long trip down the bay; odd job men from cheap lodging houses nearby, or tramps who have heard from other travelers of the road of a chance to clean up. Sometimes a cripple is seen scrubbing out his clothes. Sometimes the patrons are men sent over from one of the Rescue homes. During the war many soldiers from the camps took advantage of the laundry facilities. The slight charge was not made for them nor is it made for men who have no money.

For the sum of ten cents the patron receives a towel, a half ounce piece of toilet soap, and a ticket. When his bath is finished he puts on his trousers and coat, and presents his ticket to an attendant who gives him one-third of a bar of laundry soap and assigns him to a set of laundry tubs where he proceeds to wash his clothes. If he wants to launder his coat and trousers—he has brought a blanket along for such an emergency perhaps—he does so. While his clothes are drying he enjoys a quiet smoke and talk with the other men.

So successful and popular was the public laundry in connection with Walters No. 1, that when the four other public baths were built, laundries were installed. As these were in residential neighborhoods they were opened to women. Here a woman can do her family washing and ironing at a cost of 28 cents in four hours while the children play in an adjoining playroom. The 28 cents has covered 20 cent charge for four hours in the laundry, 1 cent for bluing, 1 cent for starch, and 6 cents for soap. The women who patronize the public laundries often live in tenements or rooming houses where laundry facilities are inadequate or entirely lacking.

Walters No. 3, patronized by colored women, is by far the most popular of the Baltimore laundries, having accommodated 13,998 during 1920. To these colored women living in crowded tenements and alleys the public laundry offers their only means of cleanliness.

The attendance for the year 1921 at the laundries was as follows:

Walters No. 1—	
For men only	12,689
Walters No. 2—	
For women only	3,235
Walters No. 3—	
For colored women	12,980
Walters No. 4—	
For women only	3,523
Greenm't Ave.—	
For women only	2,499
Total	34,926

To city officials who are contemplating the establishment of public laundries, Mr. Kelley makes the following suggestions: That there should be a playroom adjoining the laundry where

Walters Baths No. 3 where women from nearby tenements or rooming houses may do their family washings. A playroom is maintained for the children.

mothers can leave their children; that advertising is often necessary at first; that employees should be selected with care as a poor employee can keep many patrons away.

Dr. Donald B. Armstrong, of New York City in writing of public laundries several years ago said that of the fifteen institutions in the United States, five of the best were in Baltimore.

Public laundries are of vital importance to the city in Dr. Armstrong's opinion. Affording people an opportunity to be clean gives them an appreciation of health and decency and enhances their moral and spiritual tone.

Springfield Protects Traveler

SPRINGFIELD, ILL., furnishes every safeguard possible for the health of the traveling public. Its central location, coupled with its historic associations as the city in which Abraham Lincoln lived and in which he lies buried, takes tens of thousands of visitors to the city annually. Last year approximately 100,000 convention delegates alone visited Springfield. Added to these were many thousands of automobile tourists and other travelers.

Particular attention has been paid to the safety of auto tourists. Springfield, a city of seventy thousand, maintains free of all charge to the traveler, five splendidly located and equipped camps. Four of these are located in parks within the city limits while a fifth, instituted this Spring, is situated in the forest preserve of four hundred acres recently acquired by the Park Board along the banks of the Sangamon river, six miles north of the city.

These camps are ideally situated on high ground in shady groves of stately trees. No well water is permitted to be used, the entire supply being drawn from city mains. This is tested weekly by the State Water Survey and complies with the standard required by the Illinois Board of Health. Its source of supply is an underground lake from which it is drawn by a series of drive wells.

Campers are provided with sanitary toilets and shower baths with hot and cold water. Towels and soap are furnished. The camp sites are cleaned every day and disinfectants applied. Garbage cans are conveniently placed and are emptied daily. Furnaces are furnished for cooking and washing purposes and wood is supplied. There is absolutely no element of cost attached to the use of these camps. Everything is furnished free to the visitor. Needless to say, all camps are given ample police protection and their location marked along roads leading to them. The traveling public makes generous use of these camps during the tourist season which opens in May and runs through to November.

Springfield, through its health department, provides the following health safeguards for the traveling public: a safe water supply, examined weekly; a clean and safe milk supply —all table milk is pasteurized or comes from tuberculin tested herds; all ice boxes, refrigerators, and kitchens in hotels and eating houses examined twice a month; all edibles are required to be in a glass case and windows and doors screened; no sick person or any person with a communicable disease is allowed to work in eating places or handle food. If a case of any communicable disease is found in any hotel or rooming house, the case is promptly removed to the isolation hospital. If the disease proves to be smallpox, all exposures are promptly vaccinated, if diphtheria, all contacts are immunized with antitoxin. All bed linen or kitchen utensils that came in contact with or were used by the sick person are boiled or soaked in a strong disinfectant solution. Warning signs are placed in all public toilets, setting forth information regarding venereal diseases and instructing what to do after exposure. Instructions are given to school children on how to prevent the development of flies. Twelve thousand school children are pledged to drive the fly from Springfield.

A Plague-Proof Town in India

The only plague-proof town in India was the honor accorded Fraser Town by Sir Harcourt Butler at the first All-India Sanitary Conference, and for twelve years the town has maintained its record and has been a refuge for inhabitants of the nearby plague-stricken cities. J. H. Stephens, engineer of Bangalore, India, tells in the *American City* of the building of the plague-proof town.

The Hindoos could not understand why plague carried them off in large numbers while it rarely attacked the English occupants of the town. In their ignorance and superstition they ascribed it to the Plague Demon to be exorcised by sacrificial rites or thought that the English were working a spell upon them. They did not realize that their congested housing, their closely abutting buildings, their dirt floors and muddy streets, their vermin and rat infested homes furnished fertile field for the development of the disease.

Fraser town is located on fifty acres of high agricultural land north of Blackpully. The site is well drained. The soil consists of red loam for the upper two feet and hard gravel beneath. Its greater length faces south, the direction of the prevailing breezes assuring a windswept healthful locality. The tract is broken up into one acre building blocks, each acre divided into twenty building sites. Main roads are 99 feet wide; other roads 66 feet; and the streets 33 feet wide.

With the town properly situated and the houses far enough apart, the next problem was to draw up a set of plague-proof rules for the construction of the houses. The first and most important regulation was to keep the town free from dampness. For this reason all roads and streets were countersunk about one and one-half feet below the level of the natural ground. The natural percolation in the upper soil was cut short at each acre block by the countersunk roads and streets thus keeping the buildings quite dry even after the heaviest rains.

To keep out rats and vermin, it was required that basements be not less than one and one-half feet high and that they be built of coarse granite rubble jointed with good cement. Floors were to be of hard compressed tiles. To insure proper ventilation, the roofs were to be covered with Mangalore tiles which keep out the rain but admit of continual circulation of air through the joints. This was an especially noteworthy requirement as the Hindoos usually keep all doors and windows tightly closed.

In the new town Indian children are not forced to play in the gutters —each has his own little yard for playground. The Indians are being taught hygienic living and their children are growing strong and healthy.

The fact that for twelve years Fraser Town has been free from plague should be sufficient evidence of the success of the city's plan.

Nutrition in Soft Drinks

THAT the soft drink may have nutritional as well as therapeutic value is the thesis of M. E. Jaffa, M.S., consulting nutrition expert, California State Board of Health, set forth in the *Monthly Bulletin*.

Soft drinks may be conveniently divided into four main classes: (1) drinks compounded from artificial flavors, artificial coloring matter, and artificially sweetened; (2) drinks compounded from artificial flavors, artificial coloring matter, and sweetened with sucrose; (3) drinks compounded from fruit juices or syrups; with or without the addition of sucrose; (4) drinks compounded from syrups containing stimulants such as caffein.

Drinks coming under the category of Class 1 are rarely met with today; they were practically eliminated from the market with the proclamation of food inspection decisions Nos. 138, 139, 142, and 146, which rule against the use of sacharin as a sweetener. They have no nutritional value whatever.

Class 2, comprising drinks containing artificial color and flavor are the most commonly met with and their food value lies mainly in the sugar added. The greater the concentration of sugar employed and the larger the amount of syrup added to the bottle, the higher is the nutritional value. Tests have shown that the average amount of sugar in each drink is about two rounded teaspoonfuls. This class of drink often contains acid, chiefly citric, which has a certain therapeutic and hygienic value though no nutritional value. These drinks do not yield any appreciable amount of mineral matter.

By far the most valuable class of soft drinks, Class 3, consists of those compounded from fruit juices or syrup with or without the addition of sucrose. The mineral matter in the fruit is basic in character and very necessary to offset the acid character of the minerals found in meat, cereals, and eggs. It has recently been discovered that fruit juices contain an appreciable quantity of water-soluble vitamines. Therefore, a carbonated drink containing one and a quarter ounces of condensed pure grape juice will equal in nutritive value about one-half glass of plain or normal grape juice yielding one hundred calories, and in addition will have vitamines and mineral matter which are not present in beverages prepared from sugar syrup as a basis. This applies only to condensed fruit juices and not to fruit extracts. Likewise a glass of lemonade is rich in antiscorbutic vitamines and minerals, while the artificial beverage is devoid of these two dietary essentials.

The fourth class of drinks are those compounded from syrups containing stimulants such as caffein. These have attained great popularity and many varieties are on the market. Coca Cola is the chief beverage on the market to-day which contains caffein.

The large majority of bottled soft drinks are colored artificially, the exception being ginger ale, sarsaparilla, root beers, carbonated grape juice, and others. The colors used are those permitted by the Bureau of Chemistry, United States Department of Agriculture. They have no food value nor do they have any injurious effects on the system. Their main function is to lend a pleasing appearance to the drink, thus psychologically adding to its palatability.

The growing demand for the use of real fruit in soft drinks is encouraging. However nourishing the article is, its value is nullified unless it is prepared under sanitary conditions. Recommendations of the author are that bottled soft drink industries should have (1) clean and sanitary establishments; (2) that they should use only the highest grade of ingredients and that the beverage be prepared in strict accordance with the provisions of the California Pure Food Law; (3) that they use pure fruit syrups and juices to the fullest extent possible.

Health Officers Underpaid

MANY invidious comparisons have been made between the importance and the wide range of qualifications demanded of the efficient health officer and the salaries carried by important posts in health departments. The subject is at the present time being made a matter of special inquiry in the United States. The inadequacy of compensation, the uncertainty of tenure of office, and certain other factors affect unfavorably the status of health work as a career—facts which are to be taken into consideration in plans to educate sanitarians.

That discrepancies in compensation of health officers are not confined to the United States is brought out editorially in a recent issue of the *Hospital and Health Review* (England) in commenting upon the underpayment of Medical Officers of Health as indicating how little the public really cares about the prevention of disease.

This reads as follows:

In the *Leeds Evening Post* of January 6 there appeared a list of the salaries paid to certain of that town's officials. The tramways manager receives £2,530 per annum, the electricity manager £1,500, the gas manager £1,500, the city treasurer £1,386, the sewerage engineer £1,122, and the chief constable £1,135. We have no doubt that all these servants of the public merit entirely the salaries paid to them in their high offices; and we should expect to find that the medical officer of Leeds was equally well paid for his specialist services, since, like them, he has spent many years in training for his work, and has passed a long probation in the public service. His yearly payment is however, only £935, and even an assistant in the Town Clerk's department receives more than that. We venture to think that there is no general practitioner with a panel practice in Leeds who is receiving less than a thousand a year, and since the Medical Officer of Health is supposed to be the chief medical officer in his town the position is obviously ridiculous as well as distressing. Preventive medicine, paid a starvation wage, will soon cease to attract the best brains in the profession.

It would appear that the Great City of Manchester is intending to follow the practice of Leeds. We do not know if Manchester looks to Leeds for guidance and enlightenment in matters of public health policy; but it would seem that what Leeds thinks to-day Manchester will think to-morrow, for they are proposing to advertise for a Medical Officer of Health at the salary of £1,500 a year.

The *Lancet*, we understand, refused to advertise in its pages for a successor for Dr. James Niven, the retiring health officer of Manchester because the compensation offered was so painfully inadequate. There are perhaps less than a dozen men in England who could adequately follow up the brilliant work accomplished by Dr. Niven, and yet a salary comparison would offer no indication of his distinction in the world of sanitary achievement. A worthy successor was found, however, which is a noteworthy comment upon the prevailing sense of a high calling among workers in this field. Cities should realize that the city health officer is one of its most important officers and should be compensated accordingly.

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Industrial Physicians in Seventh Annual Meeting

THE program of the Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons which appears on another page of this issue provides for authoritative discussion of a range of subjects which are directly at the basis of industrial medicine. It is more and more coming to be appreciated that, in addition to the direct relationships which always exist between human activities and human ills, specific occupations have specific bearings, and each industry may well be considered a field in itself. Industrial medicine as a specialty is new. Many observations are to be made, results correlated, and a body of scientific knowledge made available for application toward raising the standard of medical practice generally. The demand of the situation is developing leaders. The contacts and stimuli growing out of a conference of the nature planned for the St. Louis meeting give the best possible impetus toward better work and afford practically the only means of achieving unity on fundamental issues. It is hoped—and expected—that every member of the Association who can possibly attend the meeting in St. Louis will arrange to do so, and particularly that all will attend the business conferences where new policies are framed and future activities planned. The meeting is held just prior to that of the American Medical Association.

New Problems for the Water Works Engineer

IT HAS been generally assumed for many years past that the colon bacillus as a representative of the commoner intestinal organisms furnishes an adequate index of the potability of water and the efficiency of water purification. Recent observations at Montclair, N. J., and in other places[1] throw a certain doubt upon the validity of this conclusion, and open up the whole question for reconsideration. Nearly twenty-five years ago Klein[2] advanced the view that certain anaërobic spore-formers play a rôle of dominating importance in the causation of diarrheal disease. The observations at Montclair, where two outbreaks of mild diarrheal disease have been associated with a water supply free from colon bacilli but containing large numbers of spore-forming anaërobes, give substantial weight to Klein's contention, although the Montclair evidence is by no means accepted as conclusive by all students of the problem[3]. If the importance of the anaërobes should be substantiated it will obviously be necessary to regard with suspicion water supplies containing gas-formers of any type, instead of attempting as is now the practice to differentiate between supposedly innocuous anaërobes and supposedly significant bacteria of the colon group. Furthermore, our faith in methods of purification like chlorination, which will destroy members of the colon typhoid group, but not the spore-formers, will be seriously impaired if the anaërobes are proved to be of real significance.

Health Problems Involved in Control of Bovine Tuberculosis

THE very vigorous campaign against bovine tuberculosis which is being carried on in several states under the inspiration of the Bureau of Animal Industry at Washington is likely to mark an important step forward in the progress of veterinary medicine. The problem is a highly complex one, however, and the present movement must be directed conservatively and with a regard for the broad principles of public health involved if it is to accomplish a maximum of good with a minimum of harm.

The first step in this campaign is the separation of reacting from non-reacting cattle by the use of the tuberculin test and this step is clearly a sound

1. Larner, H. B.: Bacillus Welchii in a Public Water Supply as a Possible Cause of Intestinal Disease. Jour. A. M. A., 1920, lxxviii, 276-279.
2. Klein, E.: 1898 and 1899 Supplements to the 27th and 28th Annual Reports of the Local Government Board of Great Britain, containing respectively the reports of the Medical Officer for 1897-8 and 1898-9.
3. Baker, M. N.: B. Welchii and the Montclair Water Supply. Paper read before the N. J. Sanitary Association at Lakewood, N. J., Dec. 9, 1921. Printed by Montclair Water Company.

and altogether useful one. The building up of so-called "accredited herds" certified as free from tuberculosis by the State and Federal Government is an admirable move and the separation of reactors and non-reactors according to the Bang system seems logical and desirable. The cost of equipment necessary to enable the individual farmer to maintain two isolated herds is usually too great to permit of the general extension of the Bang system in its original form, but it seems possible that by cooperative arrangement the principle may be applied to larger areas.

The more enthusiastic crusaders against bovine tuberculosis are not, however, satisfied with the plan which merely isolates infected from uninfected cattle. They desire to slaughter all reactors and it is at this point that the movement threatens to become harmful rather than beneficial to the general cause of public health. The underlying policy of indiscriminate slaughtering of reacting cattle is based on the assumption that all such cattle will shortly become active cases of tuberculosis and will pine away and perish. So far as we are aware this assumption is not adequately supported and there is reason to believe that with cattle as with men you may have a positive tuberculin reaction persisting for many years without practical impairment of physical health and vigor. If such be the case the policy of slaughtering is wasteful and unnecessary.

From the standpoint of the protection of human health there are still more serious disadvantages involved in the propaganda which has been carried on in certain instances by the protagonists of tuberculin testing. It is quite clear that the only possible way in which the general milk supply of the community can be safeguarded is by properly supervised pasteurization. If tuberculosis did not exist as a disease of cattle, pasteurization would still be essential, except for a very small amount of very high grade milk, in order to protect the public against diseases of human origin and the tendency to advocate tuberculin testing and the slaughter of reacting cattle as a measure for the protection of the health of human beings must prove an unfortunate one, if it tends to hold back the movement for pasteurization which is the one hope of securing a really safe milk supply. The slaughter of healthy but reacting cattle is also a direct damage to the public health since it tends to decrease the supply of milk, an increase of which is so much to be desired from the standpoint of national nutrition. It would seem on the whole that the indiscriminate slaughtering of healthy reacting cattle is without adequate justification from the standpoint of the veterinarian and is likely to work direct and indirect harm to human health.

The Science of Applied Climatics

AN EXPERIMENT, or, more properly, a series of observations unique in scope if not in their nature, is represented in the climatic correlations with the general well being of the people in Detroit and New York City which are made possible by researches recently undertaken by The National Research Council through its recently appointed committee for "the study of atmosphere and man." Precise data will be collected over a period of twenty-five years through the analysis of which it is hoped to arrive at an "optimum" of physical conditions for man's health and highest achievement. A tentative announcement of the project appears on another page of this issue of The NATION'S HEALTH.

In England, too, an impetus has been given to the study of natural conditions as affecting human life through the appointment by the Medical Research Board of a committee to study the effects of sunlight, it being recognized that a much wider range of vibrations than is indicated by the solar spectrum influences human life and activity. While physiologic changes at great heights have commanded attention, as have the inimical extremes of tropical and polar regions, no consistent effort to study normal man in his usual habitat has been made on a scale that compares with the body of information that has been collected on artificial conditions of air, light, humidity, and interior ventilation in general. A change of climate is prescribed in such a haphazard manner as to make it uncertain whether any benefit derived is psychic or physical and even the medical profession has no satisfactory basis for the estimate of climatic influences.

While it may be wise to avoid giving undue weight to any single explanation sought for the fluctuating conditions of human health, especially as individuals exposed to the same climatic conditions react at the same time to many variable and imponderable physical and mental conditions, the proposed study should throw much light on the degree of deterioration and needless loss of human life we suffer when we deprive ourselves of the stimulating effect of fluctuating, open-air conditions.

Compensation for Typhoid

THE Appellate Court of Indiana in a recently reported case has declared typhoid fever to be compensable as an accident under the Workmen's Compensation Act of that state. The facts are, in short, that water from a polluted well was furnished the employees for drinking purposes during working hours. An employee, Karst by name, drank the water and later de-

veloped typhoid fever. The Industrial Board found that the employee "received a personal injury by accident arising out of and in the course of his employment." The cabinet company did not dispute the fact of the polluted well but claimed that award had been given for disability from disease, "for which compensation is not authorized."

The Court in reply bends its logic to conform to the justice of the situation. It disregards the charge that typhoid is a disease for which compensation is not authorized, but declares that the entrance of the typhoid germs into appellee's intestines by reason of drinking the polluted water is rightfully termed an accident because the intestines became inflamed and fever resulted.

The question is, of course, whether this distinction of the Court is sound and defensible or whether it is one which will in the course of time have to be altered and adjusted to meet the various exigencies arising in the fields of law and medicine. It is undoubtedly a distinction but if it is adhered to, then many of the industrial diseases, it may be argued, are compensable not as industrial diseases but as "accidents arising under the Workmen's Compensation Act." Is the entrance of a tubercle bacillus into the anatomy of its unsuspecting host an accident? From one angle, it may be regarded as an accident perhaps, but then it must follow that the term accident is very inclusive and may be stretched to meet the occasion. Such an award may be just, but is it legal?

Research in Vocational Psychology Receives Impetus

THE Psychological Corporation, recently granted a charter by the state of New York, is the first business corporation in the United States whose objects are the advancement of science and whose profits must be devoted to scientific research. Such names as J. McKeen Cattell, Walter Dill Scott, Lewis M. Terman, James R. Angell, Richard E. Dodge, G. Stanley Hall, C. E. Seashore, E. B. Titchener, R. S. Woodworth and R. M. Yerkes assure the broad objectives of this association to bring about the advancement of psychology through its application to educational, business, administrative, and other problems.

What may be expected in the way of developing the field of vocational psychology is indicated by the recently issued report of a year's progress of the National Institute of Industrial Psychology in England in which it is claimed that the methods adopted by the Institute have been shown "to reduce the costs of production, to promote the development of individual ability, to eliminate unnecessary effort and fatigue, and to improve the health and well being of the worker." On the basis of the accomplishments of a single year Lord Haldane expressed the belief that "within twenty years a psychological expert will be at the elbow of every manager of a great concern to aid him in increasing the efficiency of his business, promoting at the same time the happiness, health, and comfort of the workers."

Vocational psychology, like medicine and surgery, is advanced by research and by practice, said Dr. C. S. Myers, who is resigning his directorship of the Cambridge Psychological Laboratory to devote the whole of his time to the Institute. Lectureships are to be established, and research posts provided in the principal universities are to serve as local centers for the development of the work.

Epidemiological Constellations

THINKING sanitarians have for a considerable time realized that to speak of a specific organism as the cause of a given disease is a glaring inaccuracy; that the origin of a pathological condition is not to be predicated on a single event, such as the introduction of a particular germ into the living body but rather is the culmination of a considerable series of circumstances which by action and interaction produce a definite physical reaction, a bodily disorder of functionation. Thus there has been a gradually broadening concept of the etiology of sickness, and, while the pendulum swung backward in the earlier days of the bacteriological era when an organic cause was sought for every disease, it moved forward again with the knowledge that while the seed is a necessary factor in disease production, the condition of the soil, no less than the environment, is an equally necessary requisite in the completion of the pathological equation.

Prof. N. P. Tendeloo of the University of Leyden, quoted by Bosma in a recent issue of The *Lancet*, proposes the name of "constellation" for the sum-total of the factors required for a definite pathological process and the several mutual influences of the factors upon each other, *i.e.*, the relativity of the several component parts of the constellation. The removal or alteration of any factor in the constellation changes the final result because a change in the equation of disease is thereby produced. It is Bosma's plea that Bertrand Russell's dictum that "Every advance in a science takes us further away from the crude uniformities which are first observed into greater differentiation of antecedent and consequent and

into a continually wider circle of antecedents recognized as relevant" be accepted in order that we may achieve exactness by the determination qualitatively and quantitatively of the complete constellation of external and internal factors leading to an end result.

From the viewpoint of epidemiology, this argument, which at first glance is as abstruse as Einstein's theory, is of the utmost importance. It means that no single factor produces mental or physical subnormality but that a chain of co-related circumstances focuses inevitably to a certain predetermined end. Therefore in the study of a disease and in the formulation of measures for its control, it is necessary to determine with as great accuracy as possible every fact relating to the seed, the soil, and the environment. Every student of sanitary history can recall instances in which entirely empiric methods have accomplished the control of a given disease, yet at great cost, much hardship and a tremendous expenditure of blunderingly applied effort. The constant aim of hygiene is the evolution of exact methods of disease prevention methods which will accomplish a desired result with mathematical exactitude. Since a constellation is a definite equation, it is evident that the slightest alteration in any factor entering into it will alter the final result, hence a knowledge of all the component parts of the problem permits its solution in as many different ways as there are component elements in the constellation. Thus the control and prevention of disease is a many-sided affair and the sanitarian of broad knowledge has the choice of many different points at which to attack and no element in disease propagation and spread is too small to merit his careful study and attention, since upon the relativity of these depends the final outcome.

Golf and the Law of Reversed Effort

IT HAS been often said that golf is a psychological game, a statement which there is no gainsaying, but one which is frequently accepted as meaning that there is something inherently mysterious about the sport itself. This is not true. Anything which brings into play the active conflict between imagination and will, which requires the formation of judgments and the execution of coordinated acts, brings the psychological element strongly into play, and this factor is prominent in many games besides golf. Thus when one says that the player hasn't his mind on the game, it is merely a method of describing a mental state in which imagination is roaming free—"woolgathering"—or one in which it dominates the will.

Golf is a jealous mistress, demanding of those who worship at her shrine that they let no thought stray afield, visiting swift and terrible punishments upon the infractors of this rule and granting to those who obey it, sweet surcease from worry and the priceless boon of mental relaxation and physical restoration. But this is not enough. Coué has laid down a theorem with which every sportsman should be familiar and which will explain to the discouraged golfer the source and the cure of many of his difficulties. This is known as the law of reversed effort and is stated in the following terms: (1) When the will and the imagination are in conflict, the imagination always wins; (2) in conflict between the will and imagination, the imagination varies in direct ratio to the square of the will.

For example: the player is on the tee; on the right is a yawning chasm, directly ahead is the beautiful fairway with the flag jauntily snapping on the distant emerald green, to the left is a bunker and trap; the last time he played he sliced into the ditch and the time before that, he landed in the sand; he is already two down and three to go, he *must* win the hole. He tees up carefully, adjusts the ball neatly and arranges his stance with meticulous scrupulosity. All the time his imagination is nagging him in much the same manner that a wife on the back seat talks to her husband at the steering wheel. "Watch out for the ditch! Keep out of the bunker!! If you aren't careful you'll dub, whiff, foozle, hook or slice!!! Keep your head down!!!! Think what the crowd at the clubhouse will say if you let this Smith trim you!!!!! You can't do it, you can't DO it, you CAN'T do it, YOU can't do it!!!!!" and your will is answering, "You will do it, I'll make you do it, you shall do it!!!!!" The club comes back slowly, reaches the top of the swing, comes through with a snap of the wrists; there is a dull plunk; the club follows through; the player lifts his head and gloom descends; he has driven about twenty yards. The intensity of the battle between his imagination and his will has defeated him in spite of an irreproachable technic. His entire mental state, and reflexly his physical state, has been dominated by the fear of failure and therefore failure was foregone and inevitable.

Suppose on the contrary, the player takes his stance, squints at the flag and drives without any thought of the ditch, the bunker or the rough, without undue effort, without worrying about the wind or his grip, passively certain that the ball is going to travel sweetly with a nice, flat trajectory for a full two hundred yards. His mind and muscles are gently relaxed into an unconscious rhythm of movement. A titilating crack, more soul-stirring than the music of a heavenly choir, greets his ear, the ball majestically soars toward

the pin, he is engulfed in a healing balm and peace descends upon him.

The entire game is but a repetition of these two examples, modified in a thousand different ways with brassie, iron, spoon, with niblick, putter, cleek, with sand-trap, water, rough, with hills and valleys, worm-casts and the fallen leaves blushing with autumn. Imagination paints a certain hole as unconquerably difficult and thereafter, it is the player's *béte noire*—the "black beast" created by his own imagination. His ball always seeks a certain piece of rough, because he wills so strongly to miss it that his imagination triumphs. To him, putting on one green is a torture, until some one convinces him that a particular stance cannot possibly fail, and then it is transmuted into a joy. And so the game proceeds, one continual combat between his will and his imagination.

There is a practical application of all of this from a medical point of view. Golf is not a game to be thoughtlessly and miscellaneously prescribed. It is a therapeutic agent of wonderful value in selected cases, but it is no panacea, and, like other methods of cure and health creation, it must be accurately used. Granted a physique capable of indulging in this form of exercise, the physician must also assure himself that there is no psychological hazard in administering it. As in any medicament, the patient must be taught exactly how to use it and he must be warned of the dangers from its overuse or abuse. It is not enough to tell him to play golf, to instruct him to purchase a set of clubs and put himself into the hands of a skillful professional. His soul must be fortified by an explanation of the disappointments, irritations and depressions of the game at the same time setting before his mind the joy, beatitude and rejuvenation which follow in its train. For such an one it is a relaxation, a relief and an upbuilder of character, mind and body, an Antaeus-like contact with revivifying Mother Earth.

Carnegie Fund Founds Economic Institute

AN IMPORTANT development and one which will make for stability and breadth of research is the establishment in Washington of an Institute of Economics. Financed by funds from the Carnegie Corporation, a paid staff of expert investigators, in cooperation with other economic bodies of recognized standing and with other institutions, will develop those fundamental economic facts which so closely concern the industrial life of individuals and nations. The first board of trustees includes Dr. Arthur T. Hadley, president emeritus of Yale University; A. Lawrence Lowell, president of Harvard; Dr. Charles D. Walcott, of the Smithsonian Institution; Dr. Edwin A. Alderman, president of the University of Virginia; Dr. David Kinley, president of the University of Illinois; Paul Warburg, former member of the Federal Reserve Board; John Barton Payne, chairman of the Central Committee, American Red Cross; Robert S. Brookings, St. Louis; Charles L. Hutchinson, Chicago; David F. Houston, James J. Storrow, Boston; Bolton Smith, Memphis; Whiteford R. Cole, Nashville; Samuel Mather, Cleveland, and George Sutherland, Salt Lake City.

By means of bulletins and pamphlets the information collected by the Institute will be made available to leaders in political, educational, business, and social fields. One of the most hopeful signs of the times is the manner in which esoteric knowledge is being put to work in practical affairs. New standards of achievement will evolve with the complete reciprocity between economic and scientific fields. Particularly wholesome is it for those enthusiasts who think that social ills are due to one cause and will yield to corrective effort in a single direction to realize that welfare work, medical and social, is fundamentally a field of applied economics. Work will become more effectual and medical and health workers will be more in command of themselves and the situation as they become open minded students of the economic laws which control the expression of social life.

THE acceptance of the Sheppard-Towner Maternity Act without delay by thirty-six states would be sufficient answer to those who have been trying to raise a "hue and cry" against what they imitatively call paternalism. An unbiased intelligence accepts this measure without question. It merely stimulates the states by Federal grants to engage in a program of education for maternity and infant care. It provides Federal grants to the states—a policy as old as this nation. It leaves the states free to accept or reject. It does not provide for Federal control; it merely gives Federal aid and counsel to the states for a national purpose.

THE study of heart disease will receive added impetus from the most unique clinic in the world established recently by Sir James MacKenzie, eminent heart specialist in which every adult citizen of St. Andrews, Scotland, will be examined monthly. With such a controlled field of research, findings will doubtless be of value in combating the ever-growing menace of heart disease.

HEALTH IN INDUSTRY

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Feeble-Minded Women in New York Industries

A Successful Experiment by Which Dependent, Subnormal Girls Were Rendered Self-Supporting

BY EDITH HILLES, DIVISION OF WOMEN IN INDUSTRY, NEW YORK DEPARTMENT OF LABOR, NEW YORK CITY.

ACCORDING to figures collected by Dr. H. H. Goddard, there were in 1915 between 300,000 and 400,000 feeble-minded persons in the United States—at least 3 per cent of the total population. Less than one-third of these feeble-minded persons were being cared for in institutions. The remainder lived at home and were free to take part in the life of their community.

The dividing line between the feeble-minded and the normal person is indeed a shadowy one. Our standards change, our tests vary. Joseph Choate is reported as having once said, "the trouble with the feeble-minded is that there are so many of us."

The actual number of feeble-minded persons in the United States is unknown and it is probably much larger than popular estimates dare to place it. While there is a growing realization of the necessity for the segregation of feeble-minded persons and their custodial care, on the one hand, there is also a growing realization that these feeble-minded persons can never be adequately cared for until there is a definite policy established looking toward their self-support.

In connection with such a policy, New York State since September, 1917, has been trying out Industrial Colonies of moron workers.

Agricultural colonies for men, and a few for women, are coming to be more or less common types of experiment, but Industrial Colonies have not been tried to any extent.

A greater knowledge of the way the human being in the factory works, and a wider study of the requirements of modern industry should develop a place where the mentally handicapped worker can maintain a useful industrial life.

Selection in such cases becomes synonymous with adaptation. Supplemented by right living conditions and such supervision as the case may require, useful and remunerative work should furnish the necessary foundation of stability in health and character.

Domestic colonies have also been tried where a group of girls were housed in a town under the supervision of a matron and were available for domestic work at day, half-day or hourly rates. In December, 1919, the Central Labor Union in one of the cities where an industrial colony of feeble-minded girls had been established, with the girls working in a knitting mill, requested the New York State Department of Labor to make an investigation of the employment of these girls, inasmuch as the Central Labor body felt that the "employment of sub-normal girls has a tendency to undercut and underbid the normal girls, and to pull down the whole standard of labor."

Such study gives rise to many complications and the consideration of fundamental policies regarding the place of the high grade morons in the community. The cost of custodial or supervisory care would be so much as to make adequate state appropriations utterly impossible, and the custodial home in New York has since 1914 cared for the moron type of feeble-minded in colonies fifteen to twenty near the Parent Institution, in an effort to work out a scheme whereby this type of feeble-minded person could be made self-supporting and could approach becoming a normal part of the community.

The introduction of these sub-normal girls into Industry must be scrutinized from several points of view:

(1) That of the welfare of the girls themselves for whom it may be said that the experiment promises much. They are freed from the rigidity of institutional life, given regular, and, as far as is known, congenial occupation, and provided with the opportunity of forming social contacts.

(2) That of their fellow workers, who for the present purpose may be considered normal. The employment of the feeble-minded in private industry will tend to add increasingly to the inert and uncomplaining group who accept exploitation without question.

(3) That of the public at large which for its own protection is at present pledged to the extinction of the moron type. It is, therefore, to their advantage that as many as pos-

sible of this type be properly supervised.

The Superintendent of the Custodial Home in question, is, of course, primarily interested from the first point of view. As long as there are girls in the institution who can perform unskilled work in industry, and as long as industry is willing to engage them for this unskilled work, why should such an experiment not be tried? The work shop must, of course, have hygienic conditions. The payment must be on the same basis as that of normal workers doing the same work. The wage need not be high and, while an endeavor should be made to secure a wage that would permit the girl to live in the Colony House independent of aid from the Parent Institution, this wage might easily be beneath what a girl living by herself would need.

Attempt at Normal Environment

In the case of a strike, the Industrial Colony girls suspend work. This was agreed upon when the experiment was first planned, and such action was taken in May, 1920, when a strike occurred at one of the mills.

The point of view of the Superintendent of this home is that faulty environment contributes most of the trouble of a feeble-minded person. Proper training, good environment, and some supervision will very often remove the dangerous or bad characteristics so often at one with the feeble-minded. Colonies are viewed as stepping stones from the institution to parole and ultimate release. Parole may extend to a period of five years; while marriage is not "encouraged," release means that a girl will probably marry and have children. There is a plan to make a study at some time of the mentality of these children, but this study has not yet been begun.

In bearing out his theory, the Superintendent cites a study of the regeneration of the Jukes who were removed to new environments and who married into other families, as showing the treatment necessary in dealing with the feeble-minded. He also cites a study in Cincinnati of the success of pupils who formerly had been in the special classes in the public schools for backward and mentally deficient children.

"The feeble-minded recruits to this colony are chosen by a staff of doctors at the Custodial Institution. After training or observation, they are sent to the colony and tried on various processes in the mills until one is found at which they can work most satisfactorily and efficiently. The processes at which these girls are employed vary, the job being adjusted, insofar as it is possible, to the special type of girl, but a point is usually reached beyond which they cannot go. Some stop at simple hand operations of carrying or cutting threads; others go on to the simple machine operations."

From the point of view of the feeble-minded girls, it may be assumed that such experiments as these colonies represent are extremely beneficial in that they enable girls to live as nearly as possible in normal life. As compared with the older custodial system, the advantages of such a plan are many: supervision presumably remains the same, but the individuals have a more normal environment and being engaged in work which is suited to their ability, a large percentage are separated from lives of crime and immorality and are made happy, industrious, and useful. In the meantime, the rooms vacated by them in an institution are made available to the more defective and, finally, insofar as each colony is self-supporting, the cost to the State for the care of the feeble-minded can be reduced and a given appropriation can, therefore, be made to cover a larger percentage of the estimated thirty thousand defectives in New York State.

It is claimed that during the last few years, the type of feeble-minded applying for institutional care has changed. "Whereas ten years ago 80 per cent were idiots and imbeciles and only 20 per cent borderline cases or morons, now only 20 per cent are of the idiot and imbecile class and 80 per cent morons or borderline cases." [1]

The Superintendent interviewed, states that this apparent increase of high grade types of mental defectives is due to the development and increasing complexity of the processes of machine production, which calling for a more and more highly organized type of operator, eliminates as unfit for use at complex machine or hand processes groups of persons who in another phase of industrial development were happily and industriously adjusted to their environment.[2] [3] As Binet has said, "a French peasant may be normal in a rural community but feeble-minded in Paris." If this idea is followed to its logical conclusion, the assertion can be made that inasmuch as common hand labor demands a lower degree of intelligence, the moron and none but the moron should perform what there is left of it. Such an assertion would amount to a proposal for placing the moron in the community in living and working units, for the purpose of substituting his common hand labor for that of workers otherwise and formerly considered normal. It would amount to committing unskilled work to persons of unredeemably low intelligence; the gradual adoption of a social policy which would recommend the retention of such in society because of their docility in the performance of stupid or routine tasks.

By nature the moron is happiest when provided with agreeable and monotonous work, and, given simple food and simple lodgings, asks nothing more of his employers; having no conception of the use or value of money, he is not liable to make complaint on the score of low wages. The superintendent of one of the mills is quoted as saying, "even though this class of worker produces unevenly, I can dilute my working force to the extent of 30 per cent with them and still maintain production. They live near by, are well disciplined, never complain, and never strike."

These industrial experiments are being tried by the Knitting Mill Company operating eight plants. About two-thirds of the working force in these plants are women. The output is knitted underwear. The women workers are entirely unorganized, the wage rates are comparatively low and conditions are unstandardized. While the labor supply is apparently adequate it is unstable and in a constant state of flux. Labor unions always claim that they have had trouble with the knitting mills, though there has never been a large strike. At first, the introduction of feeble-minded women was resented very much by the normal workers, but the strong feeling has died down.

The feeble-minded girls live in a colony house which accommodates from fifteen to twenty-five. A matron is in charge of the house, and supposedly this matron or someone designated by her, accompanies the girls to and from work and during their hours of recreation. They have been known, however, to take walks and go to the movies alone. Supervision obviously presents practical difficulties. Recently two of the women ran away; one was a high grade girl about twenty years old, and the other

1. Interview with superintendent.
2. Goddard, H. H.: Feeble-Mindedness, Its Causes and Cure, p. 575.
3. Machine production has to a great extent displaced common hand labor. Home Custodial Asylum, Twenty-Second Annual Report, 1916, p. 54.

was the mother of six illegitimate children, several of whom were feeble-minded.

At different times members of the feeble-minded colony have been returned to the Asylum as unfitted for the work in the mills. This unfitness includes failures due to other than industrial disability, such as sickness, flirting, or boisterous behavior on the street and similar offenses.

Their wages are collected and from that their expenses are paid; each girl is given twenty-five cents a week for spending money, and fifty cents a week for the savings bank. According to the Twenty-second Annual Report of the Rome State Custodial Asylum, it required about one-third of the earnings of these girls to support the colony, including the cost of furnishings, rent, etc. The remainder of all money collected is placed in the bank for general expenses, clothing, and other necessities, and each girl is given some money from the general fund for all necessary or reasonable purposes. There has been an improvement in the ability of the colonies to spend their earnings carefully.

The girls are trained at the various processes by their forewomen, and the range of time necessary for training is not limited, because of the fluctuating interest and lack of will in the moron as a type.

In November 1920, a further investigation of the colonies at two of the mills was made by the Division of Women in Industry. At that time the largest mill employed 220 workers, 159 of whom were women. There were twenty-five feeble-minded girls. The superintendent said he did not see how the plant could run without these colony girls. The mill was suffering from the common depression. The colony had been prepared for thirty-five girls but ten of the girls were taken back to the institution for correction of one kind or another; these colony workers attended to the simpler tasks. Fourteen of them were working on machine processes, and eleven on hand processes. The foreman in charge of the finishing department said that on the whole the feeble-minded girls were about two-thirds as efficient as the normal. The average wage for the normal workers ranged from $17 to $20 a week, and for the colony workers from $12 to $15; the maximum wage for the normal workers was $30, and for the colony workers was $22. Most of the workers were on a piece work basis, and the rates were the same for the normal and for the feeble-minded. In the other mill the colony girls numbered twenty out of a total force of 120 women. The superintendent claimed that the colony girls were about seven-eighths as efficient as the normal girls and that some were quite as efficient. He was loath to increase the present number too much, however, for fear of giving the mill a bad name. The girls in this mill were at practically the same operations as in the other, and approximately the same experience was found in wages.

Since colony workers and normal workers are working at the same processes and are paid the same piece work rates, in many instances, a comparison of the productivity of the two groups would seem possible, but since no account is kept of absence, the payroll figures available are of no value for such a purpose. The only study of this sort which is known, is that by Mr. George Ordahl, who studied the efficiency of the moron workers in comparison to the normal workers in an experiment carried on by The Sonoma State Home in Eldridge, California, where a group of girls was sent to a cannery during the shortage of labor. The result of this study is shown in the following table:

	Average days worked	Average pails peeled	Lowest daily average	Lowest daily wage	Highest average wage	Average wage
20 normal women	8	86.8	21	$1.38	$2.64	$2.20
36 moron girls	6	22.0	14	.84	1.80	1.32

From these figures the efficiency quotient is found to be 60 per cent (reached by dividing average wage of group by average wage of normal women).

Seven normal women were compared with seven moron women who were packing tomatoes in cans. The normal women worked fourteen days (average), and the moron women worked five days (average). The first earned an average wage of $3.75, and the latter $2.30. In this case the efficiency quotient is 62 per cent.

In occupations in the institution, an average efficiency of 60 per cent has been shown by about ¾ per cent of the total number of inmates (130).

For a group of forty-eight women aged 16-41, efficiency quotients were obtained as follows (average wage of twenty normal women used as divisor):

	Number	Average wage	Efficiency quotient
Group 1. High grade imbeciles	6	$1.02	46.0
Group 2. Low grade morons	20	1.32	55.5
Group 3. Middle grade morons	9	1.44	65.0
Group 4. High grade morons	7	1.59	72.0
Hysterical	6	1.05	47.7

It may be noted here that the daily wage increased from $1.02 for high grade imbeciles to $1.59 for high grade stable moron.

It is undoubtedly true that some way should be worked out whereby the dependent subnormal could be self-supporting, not only for his own sake but for the sake of the community of which he is a part. It is a grave question, however, whether the state should adopt a permanent policy of placing workers, known to be subnormal, in private industries to compete with a supposedly normal group.

Rôle of Visual Fatigue in Industry

Fatigue of the retina and visual centers occurs more frequently than suspected, states E. Jackson in the *American Journal of Ophthalmology*. Fatigue of the retina and that of the intracranial neuron cannot be discriminated. Fatigue is attended by lowered visual acuity as is observed when eyes are being tested. Age, exposure to light, overuse of the eyes at a near point for long periods of time, and disease influence the changes in visual acuity. The condition is also closely associated with general nervous breakdown, neurasthenia, or asthenia. Strong contrasts are likely to be fatiguing to the eyes. This is of importance because the power of the eye depends on sharpness of contrasts.

In its building program, Indianapolis school authorities are considering plans for a four class room fresh air school. Besides the four class rooms there will be large sleeping porches, a dining room, kitchen and other accessories.

Industrial Anthrax in Pennsylvania

By HENRY FIELD SMYTH, M.D., School of Hygiene, University of Pennsylvania, and Elizabeth Bricker, M.D., Medical Inspector, Pennsylvania State Department of Labor and Industry, Philadelphia

THE question of the dangers of anthrax infection in industry from the handling of hides and skins, wool and hair, is one of increasing importance in this country. The study of reports appearing from time to time in medical literature seems to indicate a growing menace in this respect, at least from the handling of hides, skins, and hair.

Wool.—Up to the present there seems to be little infected wool handled in the United States though that there must be some danger from that source is shown by the fact that the Bureau of Labor Statistics Bulletin No. 267[1] lists five fatalities from handling wool. No. 142 was foreman and wool sorter in a Philadelphia mill handling China wool at the time (1916), No. 7 was a wool sorter in Williamsport sorting only domestic wool (1910) and No. 218 was a laborer in Philadelphia (1917) carting wool trimmings from a wool pulling factory. Osborn[2] lists seven cases of anthrax in Massachusetts from 1917 to 1919 among wool handlers, one of them from domestic wool.

Horsehair.—At the request of the Pennsylvania State Department of Labor and Industry the authors of this paper have made rather exhaustive surveys of both the horsehair industry and the tanning industry in the state to determine the probable anthrax hazards therein, and the results of these surveys will be summed up in this paper. The survey of the horsehair dressing industry has already been reported upon, [3-4]. It was conducted in the fall of 1920 and that of the tanneries during the summer and fall of 1921. The burden of the work of collecting and tabulating histories of anthrax cases was born mostly by Dr. Bricker, the plant surveys were made jointly, the samples for examination were collected mostly by Dr. Smyth, and Dr. Smyth in person carried out the laboratory investigations connected with both surveys.

Philadelphia is the center of horsehair dressing in this country although it is a minor industry here, much of the horsehair used in brush making and weaving being imported ready dressed. During this investigation there were visited twenty horsehair dressing shops and a few other places handling horsehair, such as haircloth weaving factories, hair curling and brush making factories, and a hair and bristle reclaiming shop. Most of the hairdressing shops are small plants with from two to six workers, the proprietors usually dressing hair themselves. The shops, with a few exceptions were dirty and cluttered with horsehair, dust, and litter. Undressed hair is received in bundles or large bales and there was no provision for separate storage of washed and disinfected hair and suspected imported hair. Clipped hair is received from the United States and Canada and from many foreign countries, and some hair is received on dried tail stumps.

Hairdressing is entirely a hand process and much of the hair is dressed unwashed. The occupation of hackling is a very dirty one, dust samples taken with the Palmer apparatus showing up to 1,000,000 quarter unit particles (0.5-10 microns in diameter) per cubic foot of air. Much of the imported hair comes from countries where anthrax is prevalent, as South America, China, and Siberia. Though considerable of the imported hair comes in under Consular certificates as from districts free from anthrax, yet our experience in the examination of hair and also of skins and hides, as will be detailed later, leads us to feel that this offers little if any protection. We have isolated anthrax from certified hair and a number of times from certified skins and hides. Osborn[2] points out the impossibility of a consul or importer in all cases assuring himself of the fact of freedom from anthrax in a district or even of being sure of the source of bales offered for export.

Samples were taken from bales of hair in all shops visited but most of them were from domestic sources and a number of these had been washed. Sixteen samples in all of foreign unwashed hair were cultured and thirteen of dressed hair from China. Virulent anthrax was isolated from dressed China horsehair and anthrax-like organisms failing to produce typical lesions in guinea pigs were found in five other samples, one of them domestic hair. The dressed China hair is that principally used for making the cheap horsehair shaving brushes which have been responsible for so many cases of facial anthrax throughout the country in the last few years. There are none of these brushes made in this state, we believe.

In this work, as in the tannery survey, the diagnosis of anthrax was made as follows: samples of solid material, as dust, hair, skins, etc., were covered with nutrient bouillon and incubated for twenty-four hours. Heated portions of culture were then injected into guinea pigs or agar plates were poured, characteristic colonies fished and guinea pigs then injected with pure cultures suspended in saline solution. Where liquid samples from tanneries were examined, if they contained substances likely to injure guinea pigs, they were plated out in agar as above. Samples containing no injurious chemicals were heated to kill off non-spore forming organisms and then injected subcutaneously into guinea pigs. Anthrax was diagnosed only when injected pigs died with typical lesions, cultures of anthrax were isolated from their heart blood and were passed in pure culture through second pigs, killing the same with typical lesions

The Bureau of Animal Industry regulations permit the disinfection of uncertified imported hair by exposure to 200 degrees F. for fifteen minutes, which seems to a bacteriologist an absurdly inadequate provision. Tests were carried out on disinfection methods with the following results: 200 degrees F. for fifteen minutes produced little if any reduction in the number of anthrax spores on samples; 200 degrees F. for twenty-four hours killed all anthrax spores in every test tried. Washing hair in hot alkaline suds as recommended by the Bureau of Animal Industry killed or removed most of the anthrax spores and subsequent drying at 175 degrees F. for twenty-four hours made this method fairly safe except that it did not protect the washer. Autoclaving at 15 lbs. pressure for 30 minutes killed all anthrax spores.

Cyllin disinfection used generally in England until recently proved absolutely inefficient.

The Bureau of Labor Statistics Bulletin 267 lists three fatal cases of anthrax in Philadelphia among hair workers, two in 1912, (No. 38, a bristle comber working Siberian hair and No. 63, a haircloth maker, also handling Siberian hair) and one in 1916 (No. 141, a laborer in a

TABLE I.—TANNERS EXPOSED TO ANTHRAX

	Total Employees	Exposed to anthrax	
		Number	Per cent
57 Cattle Hide Tanneries	7,458	614	8+
19 Goat-Skin Tanneries	5,881	426	7+
Total	13,339	1,040	7.8

TABLE II.—ANTHRAX MORTALITY IN TANNING INDUSTRY IN PA., 1910-1921

Year	From cattle hides		From goat skins	
	Cases	Deaths	Cases	Deaths
1910	1	0	2	1
1911	2	2	0	0
1912	2	1	3	0
1913	3	2	3	1
1914	1	0	4	2
1915	3	2	0	0
1916	18	2	4	3
1917	10	3	6	1
1918	15	2	4	0
1919	12	1	3	0
1920	1	1	15	2
1921	2	0	6	0
Total in 12 years	73	16 (21+%)	50	10 (20%)
Grand total	123	26 (21%)		

horsehair factory handling Argentine hair.) We have hearsay or unofficial reports of four more cases which we have been unable to verify. This is a very small number, but the number of workers is small and the bulk of the hair dressed is domestic hair which for the present can be considered as probably anthrax free, though we did recover one anthrax-like culture from domestic hair and have tabulated 102 anthrax deaths, not traceable to any contact with imported materials and unconnected with any tannery, woolen mill, or hair factory, in twenty-six states since 1910. Some of these may have been shaving brush infections, but a number gave a history of infection from livestock.

As a result of the above findings the Industrial Board of Pennsylvania adopted the following regulations:

(1) That all horsehair, as early as possible in the process of its manufacture, preferably before the bales are opened, or with the minimum amount of handling after the bales have been opened, be subjected to one of the following processes: (a) Subjection to dry heat at a temperature of 200 degrees F. for twenty-four hours. (b) Subjection to steam at fifteen pounds pressure for a period of two hours. (c) Boiling with the hair constantly covered with boiling water for three hours.

It was suggested that disinfection had best be carried out at a central disinfecting station as is being tried out in England at present.

Hides and Skins.—The tannery survey was naturally a much more extended one than that of the horsehair industry. At the time the survey was conducted only about two-thirds of the tanneries of the state were in operation, owing to business depression, but all except three of those that were running were visited and sampled. Of these three only one was of any considerable size, the other two operating only part time with a very few men.

The tanneries handling stock that is liable to contain anthrax may be classed in two main groups; those handling cattle hides, including buffalo, and those handling goat skins. Only three handle horse hide and this is all domestic stock. Six handle sheep skins but these are all received in salt and acid pickle. There were visited forty-seven tanneries receiving cattle hides and sixteen receiving goat skins.

In considering the anthrax risk in tanneries we considered as directly exposed only those who handled unlimed skins, since case histories and laboratory tests showed that there was little if any risk in handling limed dehaired stock. The few cases on record of employees in other departments of the tannery handling tanned stock we feel are probably accidental dust or contact infections from the untanned skin departments. Making this division we found that the tanneries visited and those now closed that gave histories of anthrax cases had a total of 13,339 employees with 1,040 of them—or about 7.8 per cent—directly exposed to risk of infection. In cattle hide tanneries there were 7,458 employees with 614, over 8 per cent, exposed, and in goat skin tanneries 5,881 employees with 426 (over 7 per cent) exposed (Table 1).

In or connected with these tanneries for the last 12 years we have succeeded in listing 123 cases of anthrax traceable to one or the other type of raw material (Table II). Of these cases about 21 per cent, or 26 cases, were fatal. Seventy-three cases with 16 fatalities, about 21 per cent, were from cattle hides and 50 with 10 fatalities, 20 per cent, were from goat skins. In addition to fatalities, we have tabulated time lost by non-fatal cases, and find that the 82 cases for which we have been able to obtain this data lost an average of 38.36 days per case. This would make 3,759 days lost in twelve years by the 98 non-fatal cases, or an average of 313 days per year. On this basis we can estimate that one tannery with 16 cases of anthrax lost 613 days in the eleven years and a tannery with 6 cases in one year lost 230 days in that year (Table III).

TABLE III.—TIME LOST BY NONFATAL CASES OF ANTHRAX

Total nonfatal cases in 12 years	98 cases
Average time lost (reports of 82 cases)	38.36 days
Total estimated time lost	3,759.28 days
Average estimated time lost per year	313.27 days
Greatest estimated loss in 1 year (22 cases)	843.9+ days
Greatest estimated time loss in any tannery (16 cases)	613+ days
Greatest estimated time loss in any tannery in any one year (6 cases)	230+ days

In addition to the regular tannery employees infected there are several freight handlers and longshoremen on our list and seven carpenters or repair men infected from repairing or tearing down old soak vats or, in one case, the drain from soak vats. Two wives of tannery employees were infected, one from washing and the other from mending her husband's clothes.

To show the incidence of infection among tannery employees we have studied the reports for the years 1916 to 1920 inclusive. Before 1916 we feel sure our records are far from complete and 1921 has been such a poor year industrially and so many tanneries have been closed or on part time that we have thought best to omit it. This study (Table IV) shows for the five years an infection

TABLE IV.—ANTHRAX MORBIDITY IN TANNING INDUSTRY IN PENN. 1916-1920

Year	Cattle hide tanneries: Cases	Cattle hide tanneries: Percentage of exposed employees (See Table I)	Goat skin tanneries: Cases	Goat skin tanneries: Percentage of exposed employees (See Table I)
1916	18	2.8+	4	.9+
1917	10	1.6—	6	1.4+
1918	15	2.4—	4	.9+
1919	12	1.9+	3	.7
1920	4	.6—	15	3.5
Five-year total	59	9.6—	32	7.5—
Yearly average	11.8	1.9—	6.4	1.5—
Five-year total in both cattle hide and goat skin tanneries	91	8.7+		
Yearly average for both types	18.2	1.7—		

rate of 1.9 per cent per year among exposed cattle hide tanners and 1.5 per cent per year among exposed goat skin tanners, or in the five years a total of 8.7 per cent of those directly exposed who contracted anthax. Histories of one or more anthrax cases were obtained from 23, or 40 per cent, of the cattle hide tanneries and from 8, or 42 per cent, of the goat skin tanneries.

In all the tanneries visited samples were taken and examined in the laboratory by the method previously mentioned. As a result of these examinations the following positive results were obtained (Table V). In cattle hide tanneries four positive anthrax cultures were obtained from 155 samples taken. Two of these were from one tannery soaking certified South American green-salted packer hides at the time. They had received dry hides two months previously and the anthrax may have come from them, either having remained in the vats from former soakings or infecting the new hides as dust from the stock room. One culture was from green-salted non-packer certified hides from South America soaking in sulfide solution. This tannery handles no non-certified hides. The fourth culture was from a so-called disinfectant soak of 1-1,000 mercuric chlorid in which some Indian water-buffalo hides had been soaking for twenty-four hours. This will be referred to again. These tests showed anthrax in only 2.5 per cent of the samples taken and in 6.38 per cent of the cattle hide tanneries visited.

At present most of the cattle hides being tanned in Pennsylvania are from packer killed cattle, either domestic or South American. These beef cattle are not apt to have anthrax when killed. Formerly many non-packer hides were imported and no doubt when business conditions return to normal many more will be. Most of these tanneries are packer controlled, and at present the packers produce almost enough hides to supply them all. These packer hides are received green-salted in a moist condition, tied individually into square bundles with the hair side in. They give rise to no dust in unpacking or handling. In 1921 three tanneries had received dry hides, in 1920 two more, in 1919 two more, and in 1918 five more, or 12 in all, and in many cases these dry hides were proved to be directly responsible for cases of anthrax, as in the one case in May 1921. Two cases in 1920 were directly traceable to handling green-salted hides, however.

These cattle hides are tied end to end in long ropes and soaked twenty-four to forty-eight hours in plain water and then transferred to strong lime suspensions, 20 per cent or over, to prepare for dehairing. They remain from four to twenty-four hours in a single water soak and often in running water, and are then soaked in lime four days or more before dehairing. They are transferred from vat to vat over reels without untying and with a minimum of handling and the vats are cleaned out thoroughly and at times whitewashed after each soak. This all tends to lessen the risk of anthrax in this branch of the industry, but a record of 73 cases in twelve years, with no year without a case, and with a mortality of over 21 per cent shows that the risk is still there.

Conditions in goat skin tanneries are somewhat different and tend to increase the anthrax hazard among employees. Some skins are received green-salted, packed in casks, but the majority are dry and packed in large close bales. Over 99 per cent of the goat skins are imported, mostly from countries where anthrax is prevalent, and culture tests show that many skins imported as certified contain virulent anthrax. These dry skins are loosened from the bales, weighed on small scales, and put to soak by hand. They soak 24 to 36 hours in single vats, are then pulled out by hand, placed by hand in tumbling mills to soften, trimmed over a beam, and placed in limes by hand. The dry skins produce much dust and are a source of skin wounds to handlers. In pulling soak vats the laborer must get into the drained vat and his clothing becomes soaked with water, often containing anthrax. Most of the anthrax cultures obtained from these tanneries were obtained from test tube samples dipped from the surface

TABLE V.—ANTHRAX CULTURES OBTAINED FROM TANNERY SAMPLES

Number of samples taken and of anthrax cultures isolated

Samples	Total Samples	Anthrax cultured: No.	Anthrax cultured: Per cent	Cattle hide tanneries: No. Samples	Cattle hide tanneries: Anthrax cultured: No.	Cattle hide tanneries: Anthrax cultured: Per cent	Goat skin tanneries: No. samples	Goat skin tanneries: Anthrax cultured: No.	Goat skin tanneries: Anthrax cultured: Per cent
Dust	13	4	30	0	0	0	13	4	30
Plant soak	274	27	9.8	152	4	2	122	24	19.6
Mill water	15	8	53.3	2	0	0	13	8	61
Disinfecting soak	12	1	8.3	1	1	100	11	0	0
Total	314	40	12+	155	4	2.5+	159	36	22

Tanneries in which Anthrax was found	Cattle hide tanneries: Tanneries sampled	Cattle hide tanneries: No. yielding anthrax	Cattle hide tanneries: Per cent	Goat skin tanneries: Tanneries sampled	Goat skin tanneries: Yielding anthrax	Goat skin tanneries: Per cent
	64	9	14—	47	3	6	11	6	54—

of these vats or from the liquor from tumbling mills.

In goat skin tanneries the following culture results were obtained (Table V).

Thirteen dust samples were taken in six tanneries. Four positive anthrax cultures were obtained in samples from three tanneries. This gave 30 per cent positive samples and anthrax in dust 50 per cent of the tanneries so sampled. Two of these tanneries had no uncertified skins on hand at the time.

One hundred thirty-five plain soak samples, including samples from mill drums, taken in eleven goat skin tanneries gave 32 anthrax positive, 23 per cent, in six tanneries, or 54 per cent. This gave anthrax positives in six out of the eleven goat skin tanneries sampled, or 54 per cent. The majority of these cultures came from soaks or dust from certified, supposedly anthrax-free stock. Samples were not taken in five tanneries as they had no raw skins on hand at the time.

The problem of disinfection of hides and skins for anthrax is a most difficult one and one that is as yet far from complete solution. Anthrax spores are highly resistant and on the hides they are protected by matted hair, dirt, and blood. Any agent that will reach and kill the spores is apt so to alter the hide that it can no longer be tanned. We have found several gaseous agents which will kill anthrax but they disintegrate or toughen the skin so as to ruin it for tanning.

The Bureau of Animal Industry regulations require that all hides or skins that are imported without consular certificates shall be shipped to the tannery in sealed cars, opened under supervision of a department inspector, and disinfected by an approved method. The method of disinfection used by practically all cattle hide tanners is to soak twenty-four hours or more in a 1-1000 mercuric chlorid solution. The usual proportion of hide to solution is 1,250 lbs. in 1000 gallons. Laboratory tests show that with this ratio the mercuric chlorid all combines with the hide and at the end of one hour there is no free $HgCl_2$ in solution. This indicates the worthlessness of the method and it was shown practically by the isolation, as previously mentioned, of virulent anthrax from a vat containing 1-1000 $HgCl_2$ solution in which a batch of India water-buffalo hides had been soaking for 24 hours.

The Schattenfroh method of disinfection by soaking in a solution of 10 per cent NaCl and 3 per cent HCl has been proved to be very efficient in killing anthrax on hides, as shown in tests previously reported by one of us[4] but Pennsylvania tanners have apparently succeeded in convincing the Bureau of Animal Industry authorities that they cannot make glazed kid from skins so treated. However we have been informed that it is used routinely for skins for upper leather in Massachusetts and we know of at least one Philadelphia tanner who was prepared to use it before the Bureau of Animal Industry allowed them to use lime. The present regulations call for a twelve hour soak in 15 pounds of either burnt lime or hydrated lime per one hundred gallons of water. They state that this approximates the 5 per cent CaO mixture formerly required. A most liberal estimate only shows that if the limes were 100 per cent. CaO—which they never are—the concentration would be a little over 1.8 per cent, rather a crude approximation to 5. That the average soaks are much less than this is evident when we realize that commercial limes do not average more than 75 per cent CaO. To test the efficiency of calcium oxide disinfection series of laboratory tests were carried out with different strengths of lime suspensions made from burnt lime and from hydrated lime with the following results. Twenty per cent CaO from burnt lime or hydrated lime killed all anthrax spores on skin samples in 8 to 10 days. Ten and fifteen per cent CaO seemed to be equally efficient. Five per cent CaO from burnt lime or hydrated lime sterilized the skin samples in ten to seventeen days. 1.875 per cent CaO from burnt lime killed anthrax on skins in ten to twenty-one days, and the same strength from hydrated lime failed to kill all anthrax in twenty-one days. Tests with anthrax spores in suspension showed that the 5 per cent suspension from burnt lime killed all spores in four to seven days, with a 70-80 per cent reduction in three days. Of these four suspensions, the 1.875 per cent suspension from hydrated lime was the only one that did not kill all spores in eleven days. These tests indicate that the Bureau of Animal Industry regulations as regards hide and skin disinfection are woefully inadequate. Several goat skin tanners soak all uncertain skins in a 10 per cent lime suspension for twenty-four to thirty-six hours. While this will not insure sterilization, it will undoubtedly materially lessen the risk of infection by destroying a great proportion of the spores.

It was thought that possibly a long contact with lime might destroy the virulence of spores before it killed them, but this is not always the case as a culture obtained from a 10 day soak in 5 per cent CaO from burnt lime proved to be virulent for a guinea pig. All of the comparative tests with lime showed a somewhat more rapid and more certain action where burnt lime was used rather than hydrated lime.

To test the protective value of whitewashing vats after soaks, bits of wood and of carborundum were sterilized, dipped in anthrax spore suspension, and then in strong lime suspension and then dried over night at room temperature. Cultures from these samples, when compared with unlimed controls showed a considerable reduction in numbers of anthrax colonies developing but not a complete sterilization. A practical test in one tannery showed that a vat presumably seeded with anthrax and giving three out of four positive cultures at two day intervals did not again give a positive culture after whitewashing until the fourth trial on the eighth day. This may have been from anthrax freshly introduced in a new batch of skins.

The tannery survey may be summed up as follows:

The survey included forty-seven tanneries handling cattle hides and sixteen handling goat skins, as well as some others handling non-infective materials.

The survey consisted of field surveys of tanneries, collection of samples and laboratory examination of the same for anthrax; also the collection and tabulation of histories of anthrax cases chargeable to the tanneries, and some laboratory experiments bearing on the efficiency of the methods of disinfection recommended by the Bureau of Animal Industry and employed by the tanners.

Anthrax cultures were isolated from vats in 6 per cent of the cattle hide tanneries, three times from certified stock and once from disinfected non-certified stock.

Anthrax was isolated from 54 per cent of the goat skin tanneries: 4 times from dust (30 per cent of samples), 24 times of soap vats (12.6 per cent of samples), and 8 times from tumbling mills (61 per cent of samples). In all, 814 samples were taken and cultured for anthrax. The great majority of the isolations were from certified stock.

All diagnoses of anthrax cultures were based on animal inoculation tests in series.

Laboratory tests showed the re-

efficiency of $HgCl_2$ disinfection as did one field test.

Laboratory tests showed the inefficiency of disinfection of skins with CaO, fifteen pounds to the one hundred gallons of water, or even in 5 per cent suspension.

These tests showed that stronger lime soaks, 10 to 20 per cent, will kill most anthrax spores provided the exposure is for at least one week.

Laboratory tests and field tests showed the probable partial efficiency of lime washing as a means of destroying anthrax in vats.

Anthrax cases were reported from 9 out of 19 (50 per cent) goat skin tanneries (5 not now in operation), and from 23 out of 57, 40 per cent, cattle hide tanneries (10 not now in operation). In the former there has not been a year since 1916 without at least three cases and in this time there have been six fatalities. In the cattle hide tanneries there has not been an anthrax free year since 1910 and but three years without one or more fatalities.

The comparatively few fatalities among goat skin tanners is probably due to early diagnosis and accessibility to hospitals.

In the years from 1916 to 1920 inclusive 9.6+ per cent of employees in cattle hide tanneries who were directly exposed to risk of infection contracted anthrax and 7.5+ per cent of the same in goat skin tanneries, an average of 1.7+ per cent morbidity per year in the combined groups.

During the 12 year period 1910-1921 cases among cattle hide tanners showed a mortality rate of 21+ per cent and among goat skin tanners 20+ per cent, or 21 per cent for the combined industries.

Non-fatal cases were responsible for an average time loss per case of 38.36 days. This totals 3,759 days for the 98 non-fatal cases in twelve years or an average of 313 days per year for non-fatal cases. One tannery with 6 cases in one year lost 230 days.

Recommendations

Based on the findings of the above survey we would make the following suggestions.

It is difficult to suggest recommendations for disinfections of hides and skins without criticism of the present Bureau of Animal Industry rulings. The tanners as a class endeavor to follow these rulings whether they have faith in their efficiency or not. The Bureau of Animal Industry itself realizes that they fail to give complete protection. Dr. Mohler states that "it is a practical impossibility so to handle imported hides and skins as to eliminate all danger to tannery workers. This danger could only be completely eliminated by bringing into this country non-infected skins. It may be said, therefore, that the regulations covering the handling of uncertified imported skins serve to lessen the danger of anthrax infection but that they do not absolutely prevent it." This is undoubtedly correct, but in our opinion the regulations might be improved upon.

We would suggest enforcement of disinfection of all imported goat skins except those from western Europe, regardless of certification, and the disinfection of all imported cattle hides that are not packer hides.

The use of bichlorid of mercury should be discontinued.

Disinfection of hides and skins should be by the Schattenfroh salt and hydrochloric acid method or by 10 per cent CaO lime suspension for twenty-four to thirty-six hours, the lime to be freshly slacked in the vat. Hydrated lime should not be used for this purpose. It must be realized that this does not give complete protection and these skins must still be handled with care. Glazed kid manufacturers, in Philadelphia, object to using the Schattenfroh method, claiming that it prevents the making of good kid, but we know of at least one tannery that was prepared to use it when they thought that the Bureau of Animal Industry was going to insist on its use. We would suggest a conference with the Massachusetts authorities as to its practical application in that state.

We would suggest the lime washing of soak vats, tumbling mills, and of the floors around vats and under mills once a week at the close of the day's work in that department. This would lessen risk of permanent infection of this department with anthrax. To prevent accidental infection of repair men, etc., as has happened in at least three tanneries we would insist that no repair men work on any surface that has not been so lime washed within the last 24 to 36 hours.

No dry sweeping should be permitted in tannery stock rooms. Floors should be swept up at the close of each day's work after a liberal sprinkling with one of the disinfecting solutions permitted by the Bureau of Animal Industry regulations, or better, should be washed up with the same. All rooms where raw goat skin stock is handled should be considered possibly infected and all rooms where imported non-packer hides are handled should also be so considered.

For the sanitation of workshops we recommend provisions similar to those suggestions given in Massachusetts Board of Labor and Industries Industrial Bulletin No. 6, quoted in Appendix A, page 163, United States Bureau of Labor Statistics Bulletin No. 267.

We would emphasize the value of medical service to tannery employees, the education of the employee in the methods of minimizing his anthrax risk; as, care of all skin wounds or eruptions however trivial, and immediate surgical treatment of all breaks in the skin.

We would insist upon adequate wash rooms for exposed employees with shower baths and dressing rooms so arranged as to keep working clothes and street clothes separate. Working clothes should be disinfected by formalin before being laundered. It would be best to have the company responsible for disinfection and laundering.

If hand disinfection basins are used the employees should be instructed to scrub the hands vigorously with soap and water and then to rinse them before using any hand disinfectant. Otherwise the solutions soon become so full of organic matter as to use up all of the disinfectant present.

No satisfactory hand disinfectant has been suggested as yet.

Two phases of anthrax protection are being studied further by one of us and a collaborator from the Department of Chemistry of the University of Pennsylvania—one the subject of hand disinfection, and the other a search for a more suitable efficient means of disinfecting hides and skins before soaking, or possibly before taking out of the bale.

Considering the proved prevalence of anthrax in imported non-packer material and the known infectiousness of the organism it is rather remarkable that there has not been a greater incidence of infection among tanners. This can only be attributable to the watchfulness of the majority of the tanners and their prompt attention to all skin wounds among workers in wet processes. The low mortality, especially among the goat skin handlers is due to early diagnosis and prompt specific treatment.

We would emphasize the importance of early reporting of all anthrax cases.

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[1]Bulletin No. 267. United States Bureau of Labor Statistics.

[2]Osborn, S. H., Anthrax Problem in Massachusetts, Am. Jour. Pub. Health, x, 1920, 660.

[3]Smyth, H. F., The Anthrax Problem in Horse Hair, Jour. Industr. Hyg., ii, 1921, 423.

[4]Disinfecting Skins and Hair for Anthrax, Am. Jour. Hyg., i, 1921, 541.

Cooperation Between Employers and Employees

Effective Team Work Grows Out of Mutual Interest and Mutual Understanding

By OCTAVIUS M. SPENCER, M.D., Washington, D. C.

PLANT managers are usually very familiar with their plant conditions. Some admit that conditions could be improved; others say that they are the same conditions that have existed for a number of years, and are therefore good enough; a few frankly make the statement that if the workmen do not like the conditions, they can seek employment elsewhere. This is particularly true at a time like the present, when labor is plentiful. A few employers are interested in their workers, some are lukewarm towards them, others give them no consideration. In a few cases, for display or show, some install modern personal service facilities, showy dispensaries, or dental clinics. Others, because competitors make improvements of this nature think that it is necessary to follow suit. A great many changes are made because of state compensation and sanitary laws. In only a few cases are these facilities installed because of the employer's human interest in the workers and his desire to educate them towards better health conditions, which will in turn act as bread cast upon the waters. However, there are times when the employer, whatever may be his reason for installing personal service facilities, a dispensary, and modern plant methods, is disappointed and cannot understand why these improvements do not prove a success. The answer to this is not hard to find: the failure is due to lack of cooperation and lack of education of both employer and employees. Lack of education on the part of the management is also complicated in many cases by a failure on the part of the management to understand the workmen, while on the other hand the workmen do not understand the object of the management in making these changes, since no explanation is offered them as to the benefits which they will receive.

Operator and operatives need to get rid of their present suspicion and their mercenary ideas, and to assume a simple, unselfish, and mutually beneficial attitude, each admitting to the other that there can be no success without cooperation. This will affect production, maintenance, cost, labor turnover, absenteeism, sickness, and the success or failure of welfare work and personal service facilities.

It is admitted that no real study of existing conditions in any industry can be made, and much less can an effectual health program be applied, without frank support on the part of the workman. Emphasis is now made that the same whole-hearted, sympathetic support is necessary on the part of the management.

Manager and employee as the chief beneficiaries in industrial hygiene should be equally interested. Education to this end, however, may require the broadest interpretation, from teaching the foreigner the A. B. C's, to educating the manager to a proper evaluation of scientific management in industry.

Usually investigations or plant surveys are made either at the request of the plant management or at the request of the employees, and back of the request of either there may be numerous motives, such as desire to increase production, to decrease cost, to eliminate a hazard, to cut down insurance premiums, to increase or decrease compensation. Aside from the clothing trades, can you mention any plant survey or investigation in which plant management and workers have joined forces and requested the survey for their mutual benefit?

Many studies have been published on motion, fatigue, monotony, posture, output and many other conditions affecting modern plant conditions; but the improvements suggested by such studies depend upon the degree of cooperation between employer and employee in the use of the facilities, the regulations, so envolved.

The worker controls and governs to a great extent the tenor of all studies and investigations of the nature mentioned above and makes a success or a failure of the conclusions, provisions, and installations following such studies. As the employee is here almost all-powerful, as upon him depend modern industry and the success of modern industrial improvements, it would be well to devote more time to his interest and to gain his cooperation and his confidence. If this is undertaken in an intelligent manner in an endeavor to show the worker how and whereby he will profit, both in health and in money, we may hope for better success with plant hygiene, and at the same time the interest of the plant management will become more humane and less mercenary.

No doubt there are many who do not agree with me in this; but since the average worker spends only one-third of his time in the plant and the remainder as he will, how is it possible definitely to control his actions as to the preservation of his health, the elimination of fatigue, etc., while he is away from the plant, unless he will cooperate?

Where is the dividing line between plant conditions and home conditions, as to effect on the sickness rate, the rate of absenteeism, and the rate of labor turnover? All conditions in the plant, favorable and unfavorable, apply to only one-third of the worker's time, and conclusions based upon one-third of an individual's time can not be an accurate factor in producing the sickness rate, rate of absenteeism, rate of labor turnover and physical defects found in the workers. Likewise, it is impossible to tell just how many of the physical defects observed in a given case are caused by conditions of work, and how many are caused by the individual indiscretion. In saloon days many trades were considered hazardous. Insurance companies refused to insure the workmen in the glass industry, for example. Yet today insurance companies insure most of the glass workers, for it has been found that the personal habits of the worker and not the trade caused the high mortality rate.

In the sickness or dispensary records of the plant how many cases of headache, eyestrain, constipation, etc., should be charged to illumination, ventilation, humidity, seating facilities,

and other plant conditions, and how much should be charged to the home conditions or conditions outside the plant,—such as extra work, poor ventilation and illumination of homes, indiscretion in diet, too many picnics, late hours, poor cooking, and other unhygienic home conditions?

Causes of Absenteeism

As to absenteeism, how much is due to the plant conditions and how much to life outside the plant, it is impossible to say, but many home conditions that produce absenteeism in the plant could be changed by education of the workers and their families. If the wife or husband were familiar with a dietary system and knew how to discriminate properly as to the foods that should be eaten during various seasons of the year, and if the feeding of infants and younger members of the family were properly regulated, many of the digestive disturbances and summer diarrheas would be obliterated, thus cutting down absenteeism due to sickness of the worker himself, or to sickness of members of his family which render it necessary for him to remain away from the plant. Why not educate the men and help them prevent sickness in the family? Such education can be accomplished through visiting nurses, through health lectures, and through the cooperation of the state or city health authorities in the town or locality in which the workmen live. While this education and home work may seem to be without the field of industrial hygiene and sanitation and within that of sociological work, yet the activities, the environment, and the conditions and their effects of the two-thirds of his time spent away from the plant all have a direct bearing on the worker's health and physical condition in the other third of his time when he is in the plant.

In the plant the worker is under a certain additional amount of nervous strain, under a certain amount of tension, and is therefore more likely to be sensitive to impairment of his normal functions than he is when at home or elsewhere, under no particular strain. However, in some cases home conditions may cause these conditions to prevail there; if they do, eventually the worker will break down.

It is far better to educate and to gain the cooperation of the employees than it is to force their half-hearted or partial cooperation by threat of fines or dismissal. American employees refuse to be driven, and if they are driven, whenever they get a chance, they will kick over the traces. Show them how by cooperation or by team work they can succeed or profit, and they will do their utmost.

Must Arouse the Interest

It is human nature to be careless and unobservant, and the only way to prevent carelessness and lack of observation is by impressing an error so on the offender that he will not again forget or become careless.

Just think for a moment, of the times you have visited a plant where modern facilities of all types and forms are installed, and what have you found? The walls everywhere placarded with signs for the workers: "If you do this or that, you will be fined or discharged, you will be suspended, etc." Why not educate the worker and have him fully understand the problem? If Bill Smith expectorates on the floor, uses a common drinking cup, leaves an elevator shaft open, does not sit properly in a chair, or does anything else that is contrary to the best teaching, do not fine him, discharge him, or suspend him; but make what Bill did, the subject of a short, clear instructive lecture on what might happen as a result of Bill's action. The result will be that everybody in the plant will be on the lookout for violations of the sanitary and safety regulations and the episode will tend to make all more careful in order to avoid embarrassment similar to that of Bill Smith.

Gain the cooperation of the workers and have everyone of them become a sanitary or plant inspector, and you will not have them doing all they can to hide bad plant conditions or undesirable acts of their fellow workers. If the workers are in cooperation they will aid in the carrying out of regulations and will work for the general success of the plant and for the benefit of their individual health as well.

Americans will cooperate and pull together when they are properly handled or approached, but they are the hardest people on earth to be driven. Therefore, is it not best to begin at the top, to get the plant management to put the problem up to the workers, to put all cards on the table and show the workers how the installation of modern welfare facilities and modern methods of production will help them, and thereby remove from their minds the suspicion that all this is for show, or for increasing their output at the same wages, and that the safety-first work is because of interest in the workmen and not merely to save the plant doctors' bills and insurance? See that the officials of the plant are educated in these matters and that they in turn aid in the education of the workers, and in this manner we can have everyone in an industry cooperate from the president of the corporation down to the poorest worker.

Trust your employees as human beings. They are sensitive and intelligent, subject to certain human faults and shortcomings, but nevertheless capable of seeing and observing conditions and surroundings. They are your best bet to make your plant a success. Treat them as human, tell them why this or that is done, why they should not do this or that. Educate them and seek their aid and cooperation. Just remember that workers are human beings, and have homes, and loved ones, and are not mere tools.

To the Employee

Don't consider the plant where you work as just a place to go and to remain in from one whistle to another, in order to receive so much money. Consider it a place where you have a chance to develop, where you can lay the foundation for your success in this world.

Don't condemn the plant management until you find out the plant policy and the reasons for doing things, nor the plant facilities until the facilities have proved unsuccessful.

Don't kick about things just because John kicks. Find out if things are as John says and see if they can be changed; maybe John is wrong, and maybe, by a little study of your own, you can prevent the spread of grumbling and dissatisfaction. A habit of grumbling and discontent is one of the easiest things to become afflicted with. Avoid it. Be sure you know the truth before following in line. As in the army, remember how when you joined the company or the squad, somebody said Sergeant So and So was a bully, a rough neck, and how you, too, considered him such, but never tried to find out if it were true; or if you did find out, you found the Sergeant a good fellow.

Take advantage of the personal welfare facilities offered, of the classes and lectures, of the amusements, of the modern equipment provided, and of the suggestions given for improving your home conditions. Study the rules, regulations and laws governing your work and learn for your-

-self the wisdom of their enforcement.

Also be careful and considerate of your health and your family's health and don't blame the plant for some physical ailment of yours that may be the result of your personal indiscretion when off duty. It isn't fair to raise Cain on Saturday night and Sunday, and to blame the plant for headache, constipation, and other ailments experienced on Monday.

So Mr. Employer and Mr. Employee: Stop, read, and think, before you condemn a suggestion, a method, or an installation, that is likely to prove an aid to you for efficiency, health, or welfare.

Corrective Measures in Disabilities of the Back

By W. B. FISK, M. D., Chief Surgeon, International Harvester Company, Chicago, Illinois

MANY confusing questions arise in the course of the day's work of the industrial surgeon, questions which become more complex with the ever widening scope of industrial medicine. The man in general practice has only to determine the diseased condition to be dealt with and the method of its handling. Problems of this nature in industrial medical practice carry with them economic considerations of far reaching importance. In the matter of hernia, for instance, it has been an open question for years whether to regard it as traumatic in origin or as due to hereditary conditions. Disabilities arising from weakness of the back, so-called strain, lumbago, or sciatica present even greater difficulties. It happens almost daily that employees present themselves with the complaint that in doing certain work they were taken with sudden pain in the back. The physician must decide for the Industrial Accident Board whether such disabilities are to be considered as arising out of and in the course of employment, or whether the pre-existing condition would have induced pain whether the men were at work or not.

For several years I have been wrestling with this problem, and have made many efforts to obtain a solution, but it is only within the last ten months that I have felt that I was working along the right lines. The report on eleven patients which follows is to be considered in the light of a preliminary report. I am rather reluctant to lay much claim as to results because of the few patients which I have treated, but the very gratifying results obtained on these few patients, prompts me to submit the following:

It is not the purpose of this paper to deal extensively with the subject of arthritis, but rather to call attention to one condition which we have often seen in acute arthritis, and less often in chronic cases or in patients known to have a definite pathology. In the condition to which I wish to direct your attention there is usually little, if any pathology that can be positively demonstrated by x-ray or otherwise. This statement is supported by clinical history as well as by x-ray pictures.

Clinical Picture

These patients complain of pain in the region of the sacro-iliac joint either right or left, seldom both. In the eleven patients covered by this report the pain was localized about the left sacro-iliac seven times, about the right sacro-iliac three times, and over the fifth lumbar vertebra once. When a patient presents himself for examination he stands with the heel on the affected side slightly raised from the floor, the knee is flexed a few degrees, the hip thrown outward and backward, and the lumbar spine is thrown forward slightly flexing the spine on the pelvis. This position is assumed in order to relieve pressure on the painful area. The shoulders are thrown backward, thus increasing the dorsolumbar curvature in order to bring the center of gravity within the support. Many of the patients are unable to lie flat on the abdomen. The most comfortable position for these patients is on the back with the leg on the affected side sharply flexed at the thigh and knee. Forcible extension of the leg with the patient lying on his back usually increases the pain. Spasm of the lumbar muscle is usually present and is increased with any movement or position that increases the pain. The patient usually complains of pain before the characteristic deformity is noticed.

In two of the first eight patients of the series, the patient had pain for several months before deformity was noticed. To me it is very significant that these two patients developed their deformity while in bed. Each made the statement that they were able to stand erect when they went to bed, that they had severe pain in the night, and the next morning they were unable to stand erect.

The treatment has been the same in every case. It consisted in complete relaxation under anesthesia and with the patient lying on his back with shoulders fixed a slow strong pull is made on the legs. The pull is steady and is equal to a lift of seventy-five to one hundred pounds. In making the pull, the ankles are grasped by the operator. I usually place one foot against the table in order to exert a strong pull, I then turn the patient on his abdomen and with my helper working on the opposite side I thrust my arm under the knee of the patient with the forearm hooked over the lower part of the thigh. My other hand rests on the sacro-iliac joint. The patient's thigh is then drawn downward and at the same time is over extended on the body while the sacro-iliac joint is pressed forward.

I never use fixation appliances of any kind after the stretching operation. One patient has had a recurrence of this deformity after a working period of six months.

Case Reports

Mr. J.—aged 39, examined June 15, 1921. He gave a history of having had two attacks of arthritis—one fifteen years before which laid him up two weeks. A second attack came on March 15, 1921, and continued for three and one-half months. Patient has had typhoid fever and pneumonia. One night about June 1, 1921, while in bed, the pain became very severe in the lower part of the back. Next morning patient was unable to stand erect. Pain and mal-position had been present for two weeks prior to examination. I sent the patient to the hospital, put him to sleep with gas, and did the usual manipulations. The patient got off the table alone, stood erect and walked freely without pain. He left the hospital the following morning. He returned to work in one week and has had no pain to date (March 1, 1922). The x-ray shows no pathology.

Marie F.—This girl complained of pain for several months. On November 5, 1921 the pain was so severe that she had to have assistance in getting home. She went to bed and on the following morning was unable to stand erect. She remained in bed for one week. During the two weeks after her stay in bed she was up and

about the house. Her pain was extreme. She had a marked, characteristic deformity. She was taken to St. Luke's Hospital, November 28, put to sleep, stretched, back manipulated and returned to bed. On December 1, four days after the stretching, I had her get out of bed, stand erect, over extend the lumbar spine and walk, all of which she did without pain. She returned to work in two weeks, but later claimed disability because of pain in the outer side of the calf and sole of the foot. She was not working March 1, 1922, although she is able to stand erect, bend forward and lie on her face or back without causing pain.

A. S.—age 23, strong, healthy girl. Gave no history of previous illness or injury. September 4, 1921, she slipped and fell down a short stairway. She was scarcely able to stand for two days. When in bed her most comfortable position was on her right side with her left thigh flexed on the body and leg sharply flexed on the thigh. I examined her September 6, 1921. She complained of severe pain over the left sacro-iliac joint. She was unable to lie on her face. In standing she assumed the characteristic deformity. The x-ray showed no pathology. She was taken to the hospital September 7, put to sleep with gas, stretched, and back manipulated. Five minutes after regaining consciousness she turned without assistance and lay flat on her back and then turned with face down. Neither position caused pain. She remained in the hospital four days, then went home. She returned to work in ten days and has had no pain since.

Wm. F.—Male, aged 22. Family history negative. Both parents living and well. Patient had scarlet fever thirteen years ago. No history of injury. Present disability began May 10, 1921. History of its onset is as follows: In January, 1921, while pushing a loaded truck, he slipped, both feet going from under him, allowing his back to over extend. He clung to the truck with both hands. No symptoms followed this for two months when pain was first felt across the sacral region, but later localized in the right sacro-iliac joint. In the beginning this pain was not continuous, but would come and go. It gradually increased in severity until disability resulted with continuous severe pain and marked deformity. The only comfortable position in bed was upon his back with right leg flexed at hip and knee. In a standing position his pelvis was flexed with the right side rotated forward and right leg flexed. He could not stand erect. Any attempt to do so caused great pain.

The x-ray picture showed eighteen diseased teeth. These were extracted with no improvement resulting. Medical treatment gave no relief. Patient had two or three chiropractic treatments which seemed to aggravate the condition. The patient was then under osteopathic treatments for two and one-half months, during which time thirty-eight treatments were given without relief. The patient came under our observation November 15 when he entered Hanover Hospital in Milwaukee. Under anesthesia the affected parts were manipulated. This treatment was followed by complete disappearance of the deformity and pain. This boy returned to work in ten days and continued to work for six months when he had a recurrence of the deformity.

Stanley K.—aged 47. Had been disabled for two months with severe pain over the left sacro-iliac joint. He had been unable to stand erect since illness began. No previous history of illness or injury. His deformity was characteristic of these cases. He was taken to Alexian Brothers Hospital October 4, 1921. His back was stretched and manipulated under ether anesthesia. He left the hospital in six hours. He could stand erect without pain, the first time he was able to stand erect in two months. On October 11 he could stand erect without pain and could lie in bed on his face or back without causing discomfort. He returned to work November 14 and has had no recurrence of his trouble.

Louis R.—In March, 1920, reported that he had been having pain in the lower part of his back for several weeks. X-ray picture showed a deficient lamina of the fifth lumbar vertebra. The man claimed injury. He was treated by physicians. At one time he was in plaster for five weeks. On May 29, 1921, he could stand erect and had no noticeable deformity. On that day he was put to sleep, stretched and the back manipulated. On November 2, 1921, he said that for a time following the stretching, the back was improved. He, however, could not see that there was any permanent improvement. (This case is in litigation.)

John E.—Was examined October 11, 1921. He gave no history of illness or injury. He had been unable to work since April 14, 1921. Six weeks prior to October 11, characteristic deformity became extreme. He was unable to lie, sit, or stand with any degree of comfort. On October 11, he was put to sleep and stretched. He left the hospital the following day. On October 18 he could stand erect with both legs straight and heels resting on the floor, all this without pain. He returned to work November 14, and has had no recurrence.

Wm. H.—This man was seen October 18, 1921. He had not worked for three weeks because of pain about the right sacro-iliac joint. His pain was extreme when he was first examined. The pain was localized about the right sacro-iliac joint. There was no history of illness or injury. He was taken to St. Luke's Hospital on October 19, 1921. His back was stretched and manipulated. On the following day he complained of soreness over the back. Three days after the stretching he stood erect, bent forward and backward and could put a well marked curve in the dorso-lumbar vertebrae. He left the hospital October 29, and returned to work November 7. He has had no trouble since returning to work. Although free from pain at the time of my last examination, the right hip was shifted a little outward.

Thomas S.—Was seen October 20, 1921. This patient had been disabled since January 1, 1921, with pain in the left hip over the sacro-iliac joint. The pain extended down the back of the thigh in the course of the sciatic nerve. His position in standing was characteristic of this trouble. On October 20th, under ether anesthesia we stretched and manipulated his back. He left the hospital two days later. He was able to stand erect without pain. Went home on November 29, at which time he was free from pain. He complained of some pain in the knee. He was able to work November 29.

Anton Z.—Was seen November 8, 1921. He gave a history of having been at work on top of a machine when it overbalanced and he was given a jolt which started pain in the left sacro-iliac joint. A skiagraph showed no pathology. The man was unable to stand erect. His left hip was thrown outward and backward. On November 8, under gas and ether he was stretched and back manipulated. He left the hospital on November 10. On November 14 he could stand erect, and walk, but complained of pain in the outer side of the leg. He went to work on November 25, but continued at work only two days. He then claimed that the work was too hard. He is not working at this time (March 1, 1922). He has no deformity and I am of the opinion that he is able to work.

The deformity and pain in the back have been corrected in ten out of the eleven patients worked on. In six of my eleven cases, the patient after a disability of from a few weeks to four months has returned to work within a week after the stretching and has continued at work without interruption. In three cases the pain and deformity in the back was corrected by the stretching, but some discomfort over the outer part of the calf and sole of the foot persisted. In one case the pain and deformity were relieved by the stretching. This patient returned and continued at work for six months when the deformity recurred.

In one chronic case where there was no perceptible deformity, the stretching proved of little value. This was in reality, a test case. I was desirous of knowing if the stretching process would prove of value in cases where there was no deformity.

Conclusion

(1) Because of loose ligaments about the sacro-iliac joints there is a slight shifting of the bony surfaces which allows sufficient displacement to cause pressure on a nerve or on the periosteum.

(2) Cases with marked deformity respond best to this treatment.

(3) It is the writer's opinion that the body of the vertebrae might be crushed with too vigorous overextension of the thigh on the body.

(4) I am of the opinion that it is complete relaxation with direct pull that brings about the adjustment rather than the over extension of the thighs on the body.

(5) It is important that these patients cultivate a correct sitting and standing posture.

(6) Chronic cases of arthritis with little or no deformity do not lend themselves to this treatment.

The importance of this treatment is manifest to all physicians, especially those in the industrial field. Industrial surgeons have this condition presented to them almost daily and the question for them to solve is, "Are pains in the back, frequently called lumbago, sciatica or arthritis, traumatic in origin?" My experience is that in a great majority of cases such pains are not traumatic in origin.

The contents of this paper may not be of material assistance in helping us to decide between traumatic and spontaneous back conditions, but it is of value to know that the distressing, acute arthritis of the sacral region, which heretofore has gone on for months, without change, may be relieved by a simple operation.

The Physician in Industry

AT A RECENT meeting of the Conference Board of Physicians in Industry[1], the following definition of the Physician in Industry was adopted.

The physician in industry is one who applies the principles of modern medicine and surgery to the industrial worker, sick or well, supplementing the remedial agencies of medicine by the sound application of hygiene, sanitation, and accident prevention; and who, in addition, has an adequate and cooperative appreciation of the social, economic and administrative problems and responsibilities of industry in its relation to society.

The discussion leading up to the formulation of this definition extended over several months. The questions were viewed from all angles and many suggestions were considered for including in the definition an outline of what his duties and functions were.

It was felt, however, that in order to avoid a complicated statement it would be better to include in a definition only the broad fundamental principles upon which the work of the physician in industry is based, leaving to subsequent elaboration the finer details. It was pointed out that the definition adopted should emphasize both the medical attainments and the industrial requirements of the physician engaged in this work in order to make his duties clear both to the medical profession and to industrial management.

It is assumed that the physician engaged in industrial work is well grounded in the fundamentals of medicine and surgery. He is, first of all, a physician. It is obvious, however, that this alone, while equipping him for satisfactory service in private practice, does not meet fully the requirements of industrial work. In his industrial experience he has, of necessity, to deal with questions of sanitation, hygiene, and accident prevention as applied to large numbers of people working in comparatively close association. Only by special knowledge of the work in hand will the physician be able satisfactorily to discharge his duties. His knowledge of plant processes together with the physical examination of applicants for employment and of workers already engaged will enable him by judicious placement to reduce materially the accident and morbidity hazard and rate.

It must be realized that many of the qualifications for successful medical work in industry are of a nonmedical nature, and call for a knowledge of the laws of social and industrial economics and of the administrative problems which arise in the conduct of an industrial medical department. The physician in industry must have a clear conception of the responsibilities of the industry to its workers and through them collectively to the community. On the other hand he should recognize clearly the duties of workers to the industry in which they are engaged. It is an intelligent appreciation and consideration of these problems that make for the success of the work of the physician in industry.

It is hoped that this definition will tend to remove misconceptions as to the work of the physician in industry, and establish his position and his work upon a basis satisfactory alike to the physician and to the industrial organization.

1. Membership of the Conference Board of Physicians in Industry is as follows:
Dr. John J. Moorhead, Chairman
Dr. W. Irving Clark, Vice Chairman.
Magnus W. Alexander, Treasurer
Dr. F. L. Rector, Secretary, 10 East 39th St., New York.

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Dr. E. B. Allen, Cheney Bros., South Manchester, Conn.
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Dr. C. C. Burlingame, 17 East 42nd St., New York.
Dr. C. A. Lauffer, 521 Franklin Ave., Wilkinsburg, Pa.

United States Leprosarium

Underwood & Underwood.

The largest lepers' home in America, at Carville, La., recently purchased from the State of Louisiana by the United States Public Health Service. It will be enlarged to care for the 1,000 lepers in the country. Dr. O. E. Denny will be in charge of the hospital. Congress provided for a national home for lepers in February, 1917, which was to be administered by the Public Health Service, but the various states objected so strongly to such a hospital being established within their borders that it was not until four years later that the State Leper Home of Louisiana was acquired.

ASSOCIATION LETTER

By WILLIAM ALFRED SAWYER, Secretary

THE Seventh Annual Meeting of American Association of Industrial Physicians and Surgeons will be held in St. Louis, May 22 and 23, 1922, at the Medical School of Washington University. Members will reach their hotels by taking north bound Eighteenth Street car line at east side of the Union Station. Transfers are issued to all lines. For Jefferson Hotel, Missouri Athletic Association, Marquette Hotel and Hotel Statler transfer to east bound Page Avenue car. For La Salle, Laclede, Maryland and other downtown hotels transfer to east bound Olive Street car. To reach Washington University or Barnes Hospital from downtown, take Olive Street or Page Avenue car west and transfer to Taylor Avenue line at Taylor Avenue for the Medical School and Hospital.

The Department of Occupational Therapy and Orthopedic Shop of Barnes Hospital is in daily operation and will be available for inspection at a convenient hour—to be announced.

The Board of Directors will meet at the Statler Hotel, at eight o'clock, Sunday evening, May 21.

TENTATIVE PROGRAM

Washington University Medical School
Monday, May 22—9:30 A. M.
Business Meeting

Remarks by the President.

Reports of Committees as follows:

(1) Committee to consider union with some section of the A. M. A. Dr. Otto P. Geier, chairman, Dr. C. E. Ford and Dr. William A. Snyder.

(2) Committee to report upon the relationship existing between the industrial physician and extra-industrial health agencies. Dr. Wade Wright, chairman, Dr. W. Irving Clark and Dr. Robert S. Quinby.

(3) Committee for the coordination and standardization of first-aid methods to be applied in industry. Dr. Loyal A. Shoudy, chairman, Dr. A. W. Colcord and Dr. Frank L. Rector.

(4) Committee on the standardization of records and a cost accounting system for medical service in industry. Dr. C. E. Ford and Dr. Frank L. Rector.

(5) Committee to evolve a practical scheme for supplying health service to small plants. Dr. C. F. N. Schram, chairman, Dr. C. D. Selby and Dr. Alfred E. Shipley.

(6) Report as to number of industrial hygiene departments in Federal, State and Municipal Health Departments. Dr. William A. Sawyer.

(7) Report of Committee to consider cooperation between the Association and the Conference Board of Physicians in Industry. Dr. Watson, chairman, and Dr. Otto P. Geier.

(8) Report of Secretary-Treasurer.

Hotel Statler—Luncheon
Monday—12:30 P. M.

Comments, by J. S. Newell, chairman, Superintendent, National Lead Company, Granite City, Ill.

The Physician in Industry Defined, by C. E. Ford, M.D., New York City.

Scientific Medicine and Surgery, by George W. Crile, M.D., professor of surgery, Western Reserve Medical School, Cleveland, O.

The Value of the Public Health, by Allen J. McLaughlin, M.D., president, American Public Health Association, Washington, D. C.

Human Conservation in Industry by Medical Supervision, by L. G. Harney, M.D., East St. Louis, Ill.

Washington University Medical School
Monday—2:30 P. M.

The Workingman's Diet, by John R. Murlin, M.D., professor physiology and director, Department of Vital Economics, University of Rochester, Rochester, N. Y.

Sickness Records in Prevention Work, by Edgar Sydenstricker, U. S. P. H. Service, Washington, D. C.

Mercantile Hygiene, by Arthur B. Emmons, 2nd, M.D., director, Harvard Mercantile Health Work, Boston, Mass.

Discussion by Dr. Harold W. Stevens, Jordan Marsh Company, Boston, Mass.

Occupational Diseases and the Physician in Industry, by A. G. Cranch, M.D., National Carbon Company, Cleveland, O.

Studies of Undernourishment in Industry, by Wm. Hall Bunn, M.D., Youngstown, O.

Discussion by R. W. Elliot, M.D., National Lamp Works, Cleveland, O.

Importance of Periodic Physical Examinations —with Reports on Three Thousand Examinations, by W. B. Fisk, M.D., chief surgeon, International Harvester Company, Chicago, Ill.

Discussion by R. S. Quinby, M.D., Hood Rubber Company, Watertown, Mass.

Washington University Medical School
Tuesday—9:30 A. M.

The Practical Application of the Activities of the Public Health Service to the Problems Affecting Industry and Industrial Physicians, by L. R. Thompson, M.D., Surgeon in charge, Division Industrial Hygiene, U. S. P. H. Service, Washington, D. C.

Surgical Reconstruction (Illustrated), by R. Tunstall Taylor, M.D., professor of orthopedics, Johns Hopkins Medical School, Baltimore, Md.

The Heart in Industry, by Paul D. White, M.D., chief of the medical out-patient departments and in charge of the cardiac clinic, Massachusetts General Hospital, Boston, Mass.

Discussion by Arthur E. Strauss, M.D., St. Louis, Mo.

The Relation of Inguinal Hernia to the Workmen's Compensation, by J. M. Wainwright, M.D., chief surgeon, Glen Alden Coal Company, Scranton, Pa.

Discussion by Dr. Loyal A. Shoudy, Bethlehem Steel Co., Bethlehem, Pa.

Unusual Fractions and Dislocations with End Results (Illustrated), by C. W. Hopkins, M.D., chief surgeon, Chicago & Northwestern Railway, Chicago, Ill.

Discussion by Dr. George D. Cale, St Luke's Hospital, St. Louis, Mo.

Atmosphere, Efficiency and Civilization, by Ellsworth Huntington, Department Geological Sciences, Yale University, New Haven, Conn.

What Should the Industrial Physician Know About Nervous and Mental Diseases, by Frankwood E. Williams, M.D., National Committee for Mental Hygiene, New York City.

Cafeteria lunch—served in the restaurant of the Medical School.

Washington University Medical School
Tuesday—2:30 P. M.

Election of officers.

The Relation of Syphilis and Gonorrhea to Industry, by Wm. F. Snow, M.D., general director, American Social Hygiene Association, New York City.

Discussion by Dr. A. N. Thompson, New York.

Industrial Groupings and Tuberculosis, by William Charles White, M.D., director, Tuberculosis League, Pittsburgh, Pa.

The Industrial Phase of the Tuberculosis Problem, by Frank A. Craig, M.D., physician in charge of industrial work, Henry Phipps Institute, Philadelphia, Pa.

Industrial Results of Granite Dust Inhalation, by C. Jarvis, M.D., Barre, Vt.

When this issue reaches you, you will, of course, be ready to start your trip to St. Louis to attend the annual meeting, a program of which is contained in this issue. The program is a promising one and much value should result from it.

Registration for the meeting will take place at the Medical School, Washington University. Such hotel headquarters as we will need, will be at the Hotel Statler, although the only meeting to be held there is the luncheon meeting on Monday.

The membership campaign continues to go forward and we hope that by the time of the annual meeting, a substantial increase in membership can be reported.

The following are some of the new members: Drs., James C. Graves, Jr., Travelers Insurance Company, Hartford, Conn.; F. G. Barr, National Cash Register Company, Dayton, O.; R. W. Angevine, Eastman Kodak Company, Rochester, N. Y.; S. R. Light, The Upjohn Company, Kalamazoo, Mich.; S. R. Downing, Standard Oil Co., Richmond, Cal.; J. F. Lewis, M. P. Zinc Company, DePue, Ill.; P. J. Bowman, Union Lumber Company, Ft. Bragg, Cal.; L. St. J. Hely, The Pullman Company, Richmond, Cal.; O. S. Klug, Armour & Company, E. St. Louis, Ill.; W. F. McNary, (various industries) E. St. Louis, Ill.; Klye B. Steel, New York Federal Reserve Bank, New York City; E. M. McCarty, Oxford Paper Company, Rumford, Me.; R. W. Burnett, Pine View General Hospital, D'Lo, Miss.; Richard Kemel, Tropical Oil Company, Cartagena, Colombia, S. A.; David F. Armstrong, International Harvester Company, Auburn, N. Y.; G. F. Greenleaf (various industries) Alton, Ill.; J. M. Barnett, (lumber camps) Albany, Ga.; and A. N. Dykes, (various industries) Columbus, Ga.

If for any reason you are not receiving the official journal of the Association, together with the abstracts and other literature, please notify the secretary. It is always possible for mistakes to creep in and the secretary believes the members will bear with him when such things happen.

As you doubtless know, the Secretary has other things to do besides attending to the affairs of the Association. He will appreciate it if members will take the initiative of sending information that will be of general interest.

Matters of great importance will be taken up at the business meeting and it is hoped that as many as possible will try to be there Monday morning so that the business may be transacted expeditiously.

Recent Compensation Decisions

THE Supreme Court of Pennsylvania, January 3, 1922, held in a proceeding under the Workmen's Compensation Act to obtain compensation for the death of an employee struck by the crank of a crab that the medical testimony showed that the accident was a contributing cause in the development of tuberculosis which resulted in his death. The theory is that the shock rendered him subject to the quick development of the disease and that such development was due to the injury.

The facts in short are that Kelley was a carpenter in the defendant's service and was injured March 19, 1918. He had been employed by the coal company for three years prior to the accident, was a "steady worker" and lost no time on account of illness, although not a robust man. He was winding a crab, "turning over a car to make some repairs on its bottom, when the crank flew out of his hands striking him on the head and at a point on the left side of his abdomen near the waistline knocking him down. The head was quite badly cut, but the injury to the body was not at first considered serious. . . . Five days after the injury he complained of injury in the region of the left testicle, which, upon examination, was seen to be swollen, inflamed, and tender; subsequently, about a month after the accident, an operation was performed to remove the testicle, and it was found to be infected with tubercle bacilli; following this, deceased had trouble with his hip and a general consumptive condition developed. On November 6, 1918, he died at the age of forty-six of "tuberculous peritonitis."

"There is ample medical testimony on the record to sustain the findings. . . .Under our cases, this was sufficient to warrant and sustain the award."—*Kelley v. Watson Coal Co., 115 A. 885.*

THE Supreme Judicial Court of Massachusetts, January 7, 1921, held that the evidence in the following case was sufficient to warrant the finding of the Industrial Accident Board that the employee's death was caused by lead poisoning suffered in his employment.

The employee had worked as a plumber since he was twelve years of age; he was thirty-nine at his death. The family physician testified that he had treated O'Donnell for the last few years "for what he supposed was lead poisoning. There was evidence that during the five months of his employment with Cronin, the assured, he was handling lead pipe, and his handkerchiefs and napkins would be colored red from red lead. On the testimony of the specialist it could be found that the lead poisoning which was a contributing cause of the employee's death was progressive, and probably due to the constant assimilation of the lead during the years he had been exposed to it. Without further reference to the evidence in detail, it is apparent that we cannot say that the finding of the Board was unwarranted."—*O'Donnell's Case, 133 N. E. 621.*

THE Supreme Court of Errors of Connecticut, November 3, 1921, held that where a painter who was working on a staging was subject to attacks of indigestion which in turn caused temporary unconsciousness, his death which resulted from a fall from the staging caused by temporary unconsciousness was due to an attack of his ailment and constituted an "injury arising out of his employment."

The facts of the case follow: "The deceased had worked as a painter for the defendant for two years and had painted structures at a height above the ground without being affected by it. He began September, 1918, visiting physicians for their prescription. None of the physicians told him his trouble, indeed they did not agree as to this. From time to time prior to April 15, 1920, he had spells of unconsciousness, but he had always been able to anticipate these and take firm hold of some support, and after temporary loss of consciousness he would resume work." The defendant knew of these spells of unconsciousness. About three months before the date of his injury a physician advised him to quit working in high places but he felt the necessity of work and had to continue this occupation. On the morning of April 15, 1920, he was given the choice of doing outside or inside work. He was not feeling well and selected outside work. He became sick at his stomach, went to the defendant's dispensary where he was given medicine to relieve him and returned to work. On returning from the dispensary he worked awhile, and then, apparently again feeling uncomfortable, he sat down on the platform where he was painting, smoked a cigarette, stood up, or partly stood up to resume work, and then fell backward to the surface below and fractured his skull as a result of the fall from which he died."

Two points are raised in the opinion of the court: First, did the death of Gonier, resulting from a fall from staging, caused by a temporary unconsciousness due to disease, constitute an injury arising out of his employment. . . Second, did Gonier's conduct in working upon this staging constitute willful and serious misconduct?"

The opinion of the court will not be quoted. As to the first point it was said: "Gonier's employment brought him upon this scaffolding from which if he fell he was in danger of serious injury. The danger of falling and the liability of resulting injury was a risk arising out of the conditions of his employment."

Secondly, it was not willful and serious misconduct for him to resume his work. If his conduct could be held to have been misconduct, it would be difficult to hold it to have been serious misconduct. But, aside from this, it could not be held to have been willful. He did not continue to work at this time of his liability to suffer one of these spells of unconsciousness which would be likely to cause him to fall, so that his course could not be found to have been done purposely with knowledge. Neither could it be said that the circumstances show on his part a reckless disregard of consequences for his own saftey.

The Superior Court is advised to affirm the award of the Compensation Commissioner."—*Gonier v. Chase, 115 A. 677.*

THE Appellate Court of Indiana January 5, 1922 held that disability from disease which is contracted by drinking polluted water is compensable as an "injury by accident." The appeal was made from an award by the Industrial Board in favor of appellee. No question was made "as to the sufficiency of facts to sustain the award, but the sufficiency of the evidence to sustain the finding of facts is challenged."

The appellee was in the employment of a cabinet factory which furnished its employees while at work drinking water from a well in its factory through pipes. This water was pumped by means of a steam engine and flowed constantly during working hours. Without appellee's knowledge, the water from this well, so furnished its said employees became contaminated by seepage from a toilet in its said factory. "Appellate while working used the water for drinking purposes without knowledge

of the pollution, became infected with typhoid, and was in bed several weeks. The Industrial Board found that the appellee "received a personal injury by accident arising out of and in the course of his employment." Appellant contends that the evidence does not sustain finding but "merely shows that appellee suffered a disability from a disease for which compensation is not authorized."

The court held that the entrance of typhoid germs into appellee's intestines "by reason of drinking the polluted water furnished him by appellant for that purpose, while in its employ may rightfully be termed an 'accident.' Disregarding the fact that typhoid is not inflammation occurred with resulting fever which constituted an injury within the meaning of the Workmen's Compensation Act."—*Wasmuth Endicott Co. v. Karst, 133 N.E. 609.*

Neuropsychiatric Examinations

IN ORDER to determine the causes for "nervous instability" among Harvard students, a brief neuropsychiatric examination was added in 1920 to the routine physical and orthopedic examinations. Dr. Stanley Cobb, M.D., Assistant Professor of Neuropathology, Harvard Medical School, and Assistant Neurologist, Massachusetts General Hospital, at the instance of Dr. Roger I. Lee, Professor of Hygiene, planned and supervised the examination, report of which is contained in the February issue of the *Journal of Industrial Hygiene.*

Four main questions were investigated in order to avoid diffuseness. These were: (1) What is the incidence of neurotic history in the group; (2) can any physical sign be taken as an indication of nervous instability or as indicating that the individual is potentially unstable; (3) is endocrinopathy common, and what is its relationship to nervous instability; (4) after four years of observation, do the men who showed certain symptoms at their first examination tend to fall into significant performance groups?

The examination consisted of questioning concerning history of syphilis, habits and sleep, examination of pupils, thyroid, heart rate and rhythm, blood pressure variation with posture and knee jerks. Other questions were added to bring out history of any previous neurosis and a group of physical observations which would bear directly on abnormalities of the nervous system, especially the vegetative nervous system which is known to be affected in neurotic and psychotic conditions.

The examination was carried out by a group of eight physicians familiar with the routine examination.

The examination revealed a neurotic history in 188, or 16.4 per cent of the 1,141 men examined, as shown by a history of one or more of the following troubles: Abnormal mood or difficult adaptation; nervous symptoms in past; convulsions; chorea; bed-wetting; night terrors; sleep-walking; stammering; severe nervous breakdown; nervous symptoms at present.

The men with neurotic histories differed physically from those with no such history only in more frequently showing exaggerated knee jerks, rapid heart beat, and other vasomotor phenomena such as dermographia, flushing, excessive sweating, and palpitation, but these symptoms were found in the men with neurotic histories only 6 to 10 per cent more frequently than in others.

The presence of tremor, dilated pupils, acne or variations in blood pressure with change of position did not seem to be significant in this connection,—i.e., these symptoms occurred just as frequently in the men with no history of nervous instability as in those with such a history. Only by following up the individuals with neurotic histories for years can it be determined whether they are more liable to future breakdown than are the other men.

The summary of the results showed that family history, past history, and present complaints form the best guide to nervous instability; that vasometer instability was found somewhat more frequently in the men with neurotic histories; that tachycardia, blood pressure variation, and dermographia were often found associated with each other and with exaggerated knee jerks. Men with albuminuria were likely to show all these symptoms.

Examinations also showed that endocrinopathy was rare, but the small number of cases discovered showed more symptoms referable to the vegetative nervous system and less neurotic history and acne. In men with bad mechanical use of the body, tachycardia, arrhythmia, high blood pressure, and variable systolic pressure were more common than in those with good mechanical use. It was also found that men with good bodily mechanics passed better psychological examinations than did those with poor bodily mechanics and poor posture.

Colored Women as Industrial Workers

The Consumers League of Eastern Pennsylvania has just published a study of the position of colored women in industry today. Some twenty-eight industries and seventy-four processes were found in which colored women were working. The type of work was as a general rule unskilled.

In short, it may be said "that the colored women's position in industry compares with the white women's position as the white women's compares with the man's."

Irregularity in work, slovenliness in work habits, and the other criticisms of colored workers might be applied to any group of untrained, unorganized workers who are bound to float from job to job in an effort to make ends meet. The inadequacy of the colored women's wages may be a fundamental difficulty. Eighty per cent of the women were earning less than the minimum wage of $16.50 which was recently established by the Minimum Wage Commission of the District of Columbia. This $16.50 is raised to $16.76 by the Consumers League as the minimum which would support a working girl at the time the study was made. Fifty per cent of the colored women earned actually less than ten dollars a week. The vicious circle of low wages among undependable workers is recognized. Irregularity in employment is the inevitable result of such wages. The report cites one girl as typical of this group. Earning only seven dollars to nine dollars a week and paying $6.50 of this for room and board, she was continually running short in her budget. At such times she would return to domestic work and save, eventually seeking factory work again. Then there was the girl who worked in a candy factory for eight dollars a week and left for a boarding house position at eight dollars a week and meals with Saturday afternoons and Sundays off.

The report makes recommendations to workers, to employers, and to the public pleading for social and industrial policies which will permit a fair chance for colored industrial workers.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Dangers in the Hospitalization of Normal Babies

There Is No Adequate Substitute for the Home Nurture of the Child

By A. LEVINSON, Chicago, Ill.

A NORMAL baby is an anomaly in a hospital except during the first few days of its life. Unfortunately, however, nearly every children's hospital harbors a few normal babies most of the time. These babies are usually sent to the hospital not by phpsicians but by social workers, and it is up to those concerned to familiarize themselves with the indications and counter indications for sending such cases into a hospital, and it is the duty of the physician to know the behavior of such babies in hospitals and the precautions to be taken while there.

Experience has shown that normal babies are sent to a hospital for one of three reasons: (1) sickness of mother; (2) illegitimacy; (3) examination for adoption. Although all three of these causes constitute good reasons for removing the baby from home, a great deal of judgment must be exercised before decision is made to place the baby in a hospital. It is to be remembered that hospitals are not made for normal babies; that hospitals are built and maintained for sick infants and children, and that a hospital is neither a home for orphans or the friendless nor a boarding school nor a place of exhibition. Unless these points are kept in the foreground the hospital is likely to be put to many uses other than the treatment of the sick.

The strongest argument against placing a normal baby in a hospital is the fact that very few normal babies thrive while in a hospital. However much care the baby gets, he does not as a rule gain in weight. He often even loses in weight. In addition to remaining stationary in weight the baby lacks the required exercise through the play that should be furnished to every normal baby. Above all, it is a well known fact that babies in institutions contract infectious diseases much more quickly than they do at home. The reasons for this are apparent. First of all, the baby comes in contact with other children. Even if the hospital is equipped with a special room for normal babies there is always this chance that some baby may bring in an infectious disease and give it to all the other inmates. Secondly, the lack of exercise and fresh air lowers the vitality of the baby and exposes him to infection. More than one baby has entered a hospital in a normal state of health and contracted diseases while there. It is, therefore, the duty of everyone who is confronted with the problem of removing a baby from home to exercise a great deal of judgment and to limit to the very minimum the number of babies to be placed in hospitals.

Stereotyped method, standardized routine, and sanitary platitude call forth scant response from the growing child, who is almost uniformly found to be retarded under institutional conditions.

The hospitalization of the normal child is therefore to be avoided and provision for its care must as nearly as possible approach the ideal condition of one home, one mother for each child, with full opportunity for the development of its motor capacities.

Sickness of the mother possibly constitutes the greatest reason for placing a baby in a hospital, Relatives and neighbors will often take care of the baby of a sick mother for a few hours or a few days but seldom will they care for it for any longer time. Under the circumstances, it would be most advisable to place the baby in a private home. However, when that is impossible, the baby must go to a hospital.

Illegitimacy should by right constitute no reason for placing a baby in a hospital. As a rule, however, the baby is not placed there by any physician or social worker. It remains there after birth when the mother leaves the maternity hospital and she has no means of supporting herself, still less of supporting the additional burden, the baby. It is, therefore, often a problem that cannot be solved by the hospital authorities and under present conditions cannot be prevented.

Examination for adoption should by right keep a baby at a hospital only a day or two to allow the physicians to make a physical examination and do a Wassermann test. At times, however, after the baby has entered the hospital the people who were to adopt it change their mind and the social agency has to keep it there until some other family decides on its adoption.

Whatever cause brings a baby

to a hospital, once there it should be the aim of the hospital staff to keep it in its normal state of health and to send it out as soon as possible. Neither of these objectives is very easily accomplished, but unless the problem is constantly considered, the life of the child might be endangered.

One of the first precautions to be taken is not to have the normal baby come in contact with sick babies. The ideal state of affairs would be to put each baby in a separate room. This, however, would involve a tremendous expense on the part of the hospital. The next best thing possible is to have a special ward for normal babies. Of course, the great question comes in as to how one is to know if the baby is normal when it enters the hospital. If possible, every baby should be isolated for two or three days before it enters the general normal ward.

The ward should be spacious and well ventilated. Normal babies require a great deal of air especially while at the hospital. The air does not need to be cold. The room should have fresh warm air.

The ideal way is to have a nurse for each baby. Nature has seen the wisdom of it and supplied each baby with a mother. It is only very seldom that Nature makes the mistake of supplying one mother with more than one baby at the same time. It is unfortunate, however, that hospitals cannot supply all the wants of the baby in an ideal manner. The mere fact that a baby goes to a hospital speaks for its being unfortunate and no ideal conditions can be expected.

It is, however, essential that each baby gets its full quota of care and this can be done only when a nurse has sufficient time to give a child a fair amount of attention. No more than five normal babies should be cared for by one nurse. Experience has shown that nurses cannot take care of any greater number than that.

Each infant should be supervised during its feeding period so as to prevent accident. There is as yet no substitute for human supervision in feeding babies. There are many bottle holders on the market some of which work fairly well, but no bottle holder is as good as woman's hands.

Each child should be exercised at least once a day. There is a difference between holding a baby all day and picking it up for a few minutes during the day. Babies who lie on their backs all of the time develop respiratory diseases very readily.

Picking a baby up for a few minutes does not spoil him. On the other hand it helps to exercise it and, while the baby learns to exercise its muscles by kicking with its feet, it does not exercise the muscles of its back with ease.

A nurse who takes care of normal babies must be in good health. Experience has shown that when the nurse has a cold she transmits it to the baby, just the same as when the mother has a cold the baby usually gets it.

As soon as a normal baby gets sick at the hospital it should be removed from the normal nursery. An ordinary cold contracted by one baby will spread like wildfire to all the babies in the ward. With all these precautions, it might be impossible for the hospital to keep normal babies well for an extended length of time. It should, therefore, be the aim of everyone who is confronted with the problem of the normal baby in the hospital to remove it in as short a time as possible.

Blind Read Newspapers

BRAILLE raised type must today bow to the Otophone's five musical notes. The blind man can now read to the purr, whine and rhythm of this new machine. Motifs recently worked out on the Otophone enable the sightless, with a little practice, to read the daily papers; something they have never before been able to do as no newspapers are translated into raised type.

Keystone View Company.

The new instrument was invented by Professor E. R. Fournier d'Albe, M.R.L.A., former lecturer on physics at the University of Birmingham, England, and one of them is now in operation at the Federated Engineers Development Corporation in Jersey City. Mr. Thomas H. Ormsbee in a recent article in the Editor and Publisher Magazine describing the Otophone says that it is "a beam of light, projected through a tiny lens, streaming through five rows of oblong perforations in a revolving disk, which is reflected back and transformed into sounds by means of selenium cells and is heard by the use of a very sensitive telephone headpiece."

Rays of light which automatically travel across the printed page a line at a time from left to right are somewhat similar to the five musical notes —sol, do, re, mi and sol again. Each of the twenty-six letters in the alphabet has a different sound. Plain white paper produces no sound at all.

The machine works with any common size of book type printed on white paper, and will also produce sound waves from typewritten copy.

Because of the delicacy of the mechanism it is impossible to place the machine on the market for less than $600, and while at this price it is beyond the average purse it has been suggested that Otophones be installed at certain places where the blind could use them in reading daily newspapers, magazines and books.

Preventive Measures Protect Nursing Group

By GEORGE F. DICK, M.D., Chicago, Ill.

THE following study was begun in January, 1920, with the idea of possibly cutting down the time lost from duty on account of sickness by the student nurses at the Presbyterian Hospital. The work was started not because the time lost was considered excessive, but because the situation seemed to offer an excellent opportunity for preventive procedures. There is a community of about two hundred nurses in which cooperation was secured with exceptional willingness and intelligence, and it appeared that such a study would be of general interest, especially to those concerned with preventive and industrial medicine.

A record was kept showing the diagnosis; the place where the nurse was on duty when the sickness was contracted; the number of days ill in the hospital; and the total time lost from duty. An analysis of the data collected in one and a half years shows that during the year 1920, there was a loss of 1,651 days, or about four and a half years: equivalent to the loss of more than four nurses throughout the year, in addition to the time involved in the care of the sick nurses. During this time the number of days spent in the hospital was 560.5. If the average cost of the room occupied is taken at five dollars a day, this results in an expense of $2,800 a year. Table I shows the days of hospital care and the total time off duty in six months periods, and the totals for the year 1920 and for the 1½ year period over which this study extended. In order to learn which diseases are most important from the standpoint of hospitalization and time lost, Table II was constructed.

It is seen that of the thirty-eight diseases into which the sickness can be classified, only four caused totals of more than one hundred days off duty. Of these, tonsillitis is first with a total loss of 484 days in one and a half years. Scarlet fever is next in importance with a total loss of 340 days. Influenza follows with 337 days, and arthritis is last with 142 days. From a preventive standpoint, in this instance, influenza may be neglected as it was present in epidemic form. It occurred only during January and February, 1920, and does not constitute a regularly operating cause of time loss. The arthritis cases were of the rheumatic type, and not only associated with tonsillitis in most instances, but relieved by the removal of tonsils.

At the end of the first six months study, it was apparent that tonsillitis, scarlet fever, and arthritis are the diseases toward which preventive measures should be directed. Since in each of these diseases, the throat is commonly the portal of entry, we hoped to lessen the incidence of all three by preventive measures directed against throat infections among the nurses. The following measures were employed: (1) Complete physical examination of the nurses at the beginning, instead of at the end, of their period of probation. (2) Early isolation. Nurses were urged to report sickness as soon as possible, and every nurse with a sore throat was isolated as early as possible whether or not she had a rash. (3) Removal from hospital for a time following recovery. As soon as recovered, the nurses were sent home for a time before they were allowed to return to duty. (4) Tonsillectomy in those individuals having repeated attacks of tonsillitis; and especially in those who also had arthritis, tonsillectomy was done. As a rule this was not done within one month following an acute tonsillitis, and usually the operation was done before a vacation. In the one and a half years, no sore throats have been seen in individuals with complete

TABLE I.—SHOWING THE TIME LOST FROM DUTY AND THE TIME ILL IN THE HOSPITAL IN SIX MONTHS PERIODS.

Period of observation	No. taken sick	Days ill in hospital	Total days off duty	Average days in hospital	Average total days off
January 1, 1920, to July 1, 1920	147	431	1,137½	3	9
July 1, 1920, to January 1, 1921	66	129½	280½	2	4
January 1, 1921, to July 1, 1921	73	162	184½	2	6½
Total for 1920	213	560½	1,651	2½	7½
Total for 1½ years	286	722½	2,135½	2½	7½

TABLE II.—SHOWING THE RELATIVE IMPORTANCE OF VARIOUS DISEASES AS CAUSE OF LOSS OF TIME.

Disease	No. of cases in 1½ years	Days in hospital	Total time off
Tonsilitis	67	361½	484
Scarlet fever	8	245	340
Influenza	37	126	337
Arthritis	9	46	142
Diphtheria	6	52	99
Diarrhea	40	9	97
Tonsillectomy	23	69	89
Bronchitis	11	0	65
Pleuritis	3	40	60
Sinusitis	11	0	48½
Mumps	3	0	45
Cholecystitis	1	26	41
Infected feet	2	0	32
Furunculosis	3	10	31
Appendicitis	2	18	24
Smallpox vaccination	2	0	22
Injuries	3	0	22
Infected finger	1	0	21
Teeth extractions	8	0	20½
Erythema nodosum	2	0	18
Catarrhal jaundice	1	0	16
Undetermined	14	0	14
Rectal fistula	1	6	14
Fatigue	1	0	13
Bunion	1	12	12
Amebic Dysentery	1	0	12
Typhoid vaccine	1	0	7
Urticaria	1	0	7
Menstruation	1	0	6
Infected breast	1	0	5
Otitis media	1	0	4
Cystitis	1	0	4
Stye	1	2	3
Pneumonia	1	2 fatal	3
Nasal operations	2	0	3
Burns	1	0	1½

TABLE III.—SHOWING THE LOSS OF TIME CAUSED BY THE DIFFERENT DISEASES IN DIFFERENT PERIODS OF THE YEAR.

Disease	January 1, 1920, to July 1, 1921			July 1, 1920, to January 1, 1921			January 1, 1921, to July 1, 1921		
	No. of cases	Days in hospital	Total time lost	No. of cases	Days in hospital	Total time lost	No. of cases	Days in hospital	Total time lost
Tonsilitis	39	32	315½	6	15½	38½	22	12	130
Scarlet fever	6	186	279	0	0	0	2	59	61
Influenza	17	126	337	0	0	0	0	0	0
Arthritis	6	44	131	0	0	0	3	2	11
Diphtheria	2	15	33	2	19	27	2	18	39
Diarrhea	14	0	37	15	0	24	11	9	36
Tonsillectomy	3	14	14	14	33	33	6	22	22
Bronchitis	8	0	47	4	0	17	1	0	1
Pleuritis	0	0	0	0	0	0	1	40	60
Sinusitis	6	0	8½	4	0	13	5	0	27
Mumps	1	0	16	0	0	0	2	0	29
Cholecystitis	0	0	0	2	26	34	0	0	0
Infected feet	2	0	26	1	0	2	2	0	4
Furunculosis	2	8	12	1	2	4	1	0	15
Appendicitis	2	0	6	1	18	18	0	0	0
Smallpox vaccination	0	0	0	1	0	14	2	0	9
Infected finger	3	0	17	0	0	0	2	0	4
Injuries	1	0	2	2	0	17	1	0	3
Tooth extraction	2	0	2	4	0	13½	2	0	4
Erythema nodosum	0	0	0	0	0	0	2	0	18
Catarrhal jaundice	1	0	16	0	0	0	0	0	0
Undetermined	10	0	12½	0	0	0	3	0	3½
Rectal fistula	1	6	13	0	0	0	0	0	0
Fatigue	6	0	10½	2	0	1½	0	0	0
Bunion	0	0	0	1	12	12	0	0	0
Amebic Dysentery	1	0	12	0	0	0	0	0	0
Otitis media	1	0	4	0	0	0	0	0	0
Typhoid vaccine	7	0	9	0	0	0	0	0	0
Menstruation	1	0	1	3	0	3	1	0	1
Urticaria	1	0	2	0	0	0	1	0	8
Mastitis	0	0	0	1	0	5	0	0	0
Cystitis	1	0	4	0	0	0	0	0	0
Scabies	0	0	0	0	0	0	1	4	4
Sty	0	0	0	1	2	2	0	0	0
Pneumonia	0	0	0	1	2	2	0	0	0
Nasal operations	2	0	2	0	0	0	0	0	0
Burns	1	0	1½	0	0	0	0	0	0

tonsillectomy and adenoidectomy, and in those cases associated with arthritis there has been freedom from subsequent arthritis (Table III).

The results of these measures are too striking to be attributed entirely to coincidence. In Table III a comparison of the January to July periods of 1920 and 1921 shows that the total time lost from tonsillitis in the first six months of 1920 was 315½ days; while in the first six months of 1921, it was but 130 days. There was a reduction from 279 days to sixty-one days in the loss of time due to scarlet fever. The time loss caused by arthritis was reduced from 131 days to 11 days.

Certain circumstances attending the incidence of the diseases responsible for the greatest loss of time are deserving of attention. For example: an analysis of the records shows that of all the tonsillitis cases, 42 per cent occurred in nurses on duty in the children's ward, and 50 per cent of all the cases of scarlet fever occurred in nurses on duty in the same ward. The remaining 58 per cent of tonsillitis and 50 per cent of scarlet fever were equally distributed through out the hospital.

A Summary of Findings

The diseases which caused the greatest loss of time during one and a half years, are in the order of their importance; tonsillitis, scarlet fever, influenza, and arthritis. Influenza was present only during two months when it was epidemic. Following preventive measures directed against throat infections among the nurses, there was a reduction of 58 per cent in the time loss due to tonsillitis; 78 per cent in the time loss due to scarlet fever; and 91 per cent in the time loss due to arthritis.

John P. Fletcher, Major Medical Corps, U. S. A. has an article describing a "Proposed New First Aid Packet" in a recent issue of *The Military Surgeon.*

Boy Scouts In First Aid Drills

Underwood & Underwood.

With hundreds of thousands of boys being trained in the principles of health and first aid, the future for health education in the United States looks promising. New York Boy Scouts gave an exhibition of their skill in bandaging and stretcher bearing during a recent field hospital day in Central Park.

Relation of Social Work to Mental Hygiene*

By MARY C. JARRETT, Associate Director, Smith College Training School for Social Work, Northampton, Mass.

IN DEALING with the relation of social work to mental hygiene only mental hygiene for the individual will be discussed in this paper. In the other activities of the mental hygiene movement, such as public education, surveys, promoting legislation, creating hospitals and clinics, social work may also have a part, but we have now to consider what the social worker may do toward promoting mental health in the individual. And there are two groups of social workers who must be considered: (1) The special group of psychiatric social workers who are specially prepared for work with cases of mental trouble; and (2) all other social workers, whose cases come to them by reason of social, economic, or physical trouble, but very often present psychiatric problems.

All social workers necessarily deal with mental troubles, big and little; and they have an unusual opportunity to teach and apply the principles of mental hygiene in their practice. The old popular idea that mental hygiene had to do only with insanity and feeble-mindedness is dying out and we are beginning to realize that mental hygiene is as important for all of us as physical hygiene, and that it is doing its best service when it keeps people well and active. So in the last five years there has been a very general recognition among social workers that they need to know a good deal about mental hygiene.

The psychiatric social worker has elected to work in association with the psychiatrist upon cases of mental disorder or defect, and has received special preparation for this work. A wide range of patients need the psychiatrist's care, including not only those who are acutely ill and others who are on the way to becoming ill, but also those who have slight mental difficulties that might never amount to an illness but cause discomfort, just as a chronic cold or a weak ankle may be a nuisance. So it is among a widely varied group of persons that the psychiatric social worker is employed. Because she is known to be familiar with mental disease, she is often embarrassed by being asked to diagnose mental cases. One social worker I know has at last with considerable difficulty and embarrassment persuaded her community that she is not "a psychiatrist." She has had to explain copiously that psychiatry is a branch of medicine, that diagnosis and treatment of mental disease require first, medical knowledge, since bodily and mental conditions are so closely related, and second, a very considerable knowledge of psychiatry, since mental disease is extremely complicated. In psychiatric problems the psychiatric social worker cannot properly function alone, but only as an assistant to the physician.

*Read before a mental hygiene conference under the auspices of the Connecticut Society for Mental Hygiene, Bridgeport, Conn., December 2, 1921.

Supplements Psychiatric Inquiry

A psychiatric social worker in Boston once received a long distance call from a lady in a Connecticut town asking her to come down and examine a young nephew who was giving his family much anxiety by unreasonable conduct. She explained that she was not a physician and advised taking the boy to a certain psychiatrist in New York. She has often wished since that she might have gone in response to the call, and made a social examination, for the assistance she could have given the psychiatrist who saw the boy might have been an important addition to the treatment. If she had gone down, her first duty would have been to get the history of the child from his family, the way he was born and grew, the influences and experiences that developed him, his tastes, his behavior; then from teachers and others who saw the boy frequently she would set out to learn what they had observed; a talk with the child would suggest whether his attitude called for special lines of inquiry; and, finally, she would need to observe the home and the boy's attitude toward his family. This history given to the doctor before he saw the patient would not only have saved him time, but would have given him more accurate and reliable and also fuller information than he could get from one or two relatives who might accompany the boy. It would also have shown the possibilities for carrying out the desired treatment in the boy's natural environment. Then, after the psychiatrist had made his examination, the social worker would have been able to work out with the family means of carrying out the treatment advised. Furthermore, she might have found in that locality some one sufficiently informed to make accurate and unbiased reports of the boy's progress to the physician.

Almost every case of mental disorder has some social complication. Persons who are mentally ill are apt to create all sorts of social disorder. On the other hand, mental illness is often the result of inability to meet social demands, and in many cases the conditions necessary for proper treatment can be brought about only through social work.

Psychiatrists who have proved the value of social work say that without the assistance of social workers they are unable in a majority of cases to do justice to their patients. The importance of social work in connection with psychopathic hospitals, out-patient departments, and court clinics is now pretty thoroughly recognized. Unfortunately the potential psychiatric social worker is not so well aware of her importance as are those who need her help. There are not nearly enough persons in training for this work to fill the positions that need them. In a recent report by Dr. Thom and Dr. Singer on "The Care of Neuro-Psychiatric Disabilities," in the Veterans' Bureau, the statement is made that "To do the patient justice it is essential to supplement by outside investigation. For this purpose a well organized social service is necessary." And then this statement follows: "The greatest need at the present moment is for trained personnel. It is unfortunate that neuro-psychiatric medical officers, nurses, and social workers, exist only in limited numbers, in no way commensurate with the demands."

The social worker in other fields of medical and social work has a remarkable opportunity to teach mental hygiene to her clients. Whatever the reason that brings the client to a social agency—unemployment, sickness, desertion, illegitimacy, or misconduct—the practice of the social worker is essentially the same. The first step is to find out the real cause of the individual's inability to get on. The social examination consists of inquiries from persons associated with the client and from public records. It may be that the trouble

lies in one or all of the five classes of evil that Dr. Southard classified in his "Kingdom of Evils,"—disease, ignorance, bad habits, legal entanglements, poverty, or resourcelessness. The client may be sick, ignorant, victimized by bad habits, involved with the law, and lacking financial or other resources; or he may be suffering from only one or two of these evils. It is the duty of the social worker to help him to organize his affairs in a way that will bring about the best adaptation to his environment that is possible for him, and to correct or reduce the evils from which he is suffering. He may require the services of various professional groups. Doctor, teacher, clergyman, and lawyer may all be needed in one case; but, while each is dealing with the individual in some particular relationship, the social worker is concerned with all the relationships that make up his life. It is the social worker's duty to get these relationships working together to keep the individual adjusted to his environment as well as possible.

So whatever the client thinks is the matter with him, this is what the social worker should do for him—examine his case to find out what is at the root of the trouble and then endeavor to get him into as thoroughly sound social condition as possible. A good social worker should not be satisfied to give a client merely a vacation or a job because that was what he asked for, any more than a good doctor would give a patient a plaster or a brace because he asked for it.

It is well known that there is a good deal of prejudice in the community against the social worker and the sort of social practice I have indicated. This is natural enough, for things that we do not understand are usually distasteful to us, and the theory and principles of social work are still little known. We find traces even yet of distrust of medical examination. Some people like to go to a doctor and say, "Please give me a pill for my headache," and get the pill with no questions asked. There is still some medical practice of this sort for those who like it, and a good deal of social work of the same kind is still being done. But the kind of social worker who will help to promote mental hygiene is the one who is trained to study the clients' cases thoroughly and to endeavor to bring him into good social condition.

Another objection advanced is that to help a person arrange his affairs and to smooth the environment for him is to undermine his moral character. Since we grow by struggle, it is said our development is likely to be impaired if the struggle is made easy. This it seems to me is like saying let a man be bound with ropes, so that he may by struggling develop his muscles. The people who need the care of a social worker are so bound by a network of circumstances that they are not able to use their powers of self-development. What chance for growth has a sick woman with four children and the fear of another, a quarrelsome husband not providing enough to feed and clothe the family, and a house only partly furnished? A good deal of social treatment is needed before such a patient is able to use her own powers freely.

Need of Social Work General

Social work does not remove the necessity for individual initiative but it aims to remove obstacles that throttle initiative and to stimulate the use of initiative. And the need of social work is not confined to any class of persons. In hospitals and clinics, it has been shown that it is not the poorer patients only who need the social worker. It is clear that social disorder occurs among all classes. The well trained professional social worker could with equal benefit study and advise patients among all classes. In the course of time it may become the custom to seek the advice of the social worker as freely as we consult the doctor or the lawyer.

It is hardly necessary to dwell on the importance of knowledge of mental hygiene for all social workers. The adjustment of human relationship calls for knowledge of personality and how it is developed. Moreover, since fully half the clients of social agencies present some psychiatric problem, it is obvious that every social worker should know some psychiatry. Lack of such knowledge is now causing a good deal of waste in many social agencies. Here is such an instance. A man was referred to a relief agency during a period of unemployment. He and his home made a good impression. Employers said he lost jobs because he did not get on with fellow employes. As his former work did not give scope for the mechanical ability he had, efforts were made to get him work in a mechanical line on the supposition that he would be less contentious if more interested. For a year various different jobs were found. Then he had to be sent to a tuberculosis sanitarium, where he was discharged because he was "nervous and restless." A mental examination was now secured. The man was understood by the social worker to be abnormal but not committable and efforts to get him jobs were resumed. His plight grew worse and worse and finally he went himself to a mental hospital and was committed. While the agency did secure a mental examination for this man a year and a half after he first came, he was not treated as a sick person even then.

The view that social case work is the endeavor to bring a person into right relations with his environment after a study of all his relationship and that it is applicable to all classes must prevail to a much greater extent that it does at present before social work can be used to the greatest advantage in the two fields where the best opportunities for preventive work lie—industry and the schools. These are the two places where large numbers of persons are gathered together regularly for a large part of the day. Here is the opportunity to detect the first signs of social difficulty. The earliest indication that the individual is not going to get on may be a physical symptom, a mental symptom, or a social symptom. The social worker should be trained to see all these signs before they cause acute trouble.

In the schools, the movement for visiting teachers is making steady progress. The visiting teacher is a teacher who has had training in social work. She studies the child to see whether he is getting on as well as possible in all his relationships, at home, in school, in church, in relation to his play, his health, his mental attitude. At present it is the children who are not getting along well who are referred to the visiting teacher, but in time let us hope that the child who has not shown any signs of trouble will be studied to make sure that his development is proceeding as well as possible, and to prevent trouble. It seems to be of the greatest importance that these social workers in the schools should be well grounded in mental hygiene. It may be that among a staff of visiting teachers one or more should have special psychiatric training to deal with the extreme cases of behavior difficulty, but certainly every one on the staff will need to know a good deal about psychiatry. There is an unlimited opportunity for the visiting teacher to instruct parents in mental hygiene principles.

There has recently been a movement for mental hygiene of industry. Within the last five years there has been a good deal said on the subject; a number of papers have been written, some speeches made and a few studies undertaken. So far, I know of no industrial plant that has been bold enough to establish a psychiatric department—the name is too terrifying to be faced. The suggestion made by Dr. E. E. Southard was a mental hygiene working party to study the needs of a plant and consider how mental hygiene might be applied to promote the welfare and efficiency of all there is engaged in it for the executive staff as well as the employes should receive its benefits. In one plant that I visited the head of the medical department was planning to examine all of the executive staff with the idea of maintaining their efficiency and he said he would like to have a psychiatric examination go along with the physical examination.

A Working Crew

The mental hygiene working party would consist of a psychiatrist, a psychologist and a social worker. They would study the plant carefully and find out how in that particular industrial organization their services could be used with benefit. The way to go about it can not be stated as a general proposition but must be worked out carefully in a concrete situation under practical conditions.

This recommendation of Dr. Southard's was the result of a study of the mental hygiene of industry that he undertook with my assistance for the Engineering Foundation in 1919. This investigation came to an end after Dr. Southard's death the following year. He had written three papers on the subject, and in a report given at the National Conference of Social Work I summed up what we had done. The reason for our being engaged in such a study was the belief that through mental hygiene many employees might be kept fit who would otherwise lose their jobs and that others who were not doing their best work might become more productive. This belief dawned upon us as we saw the results of social work at the Boston Psychopathic Hospital in keeping at work psychopathic employees who came there for treatment. It was clear that there were many such employed in industry who never came to a hospital but got discharged and then down and out; and also that the same principles of mental hygiene that kept sick men at work would keep well men from getting sick and make half-well men more fit. A little understanding of an employee's mental state by the employer or the foreman may result in great benefit to the firm and the workman. A man subject to spells of restlessness and excitement, when he was unfit to work, was an expert workman and so valuable that his firm said they would gladly give him two weeks off now and then when he needed it and also protect him from overtime work. Once, when I was showing some charts of cases treated at the Psychopathic Hospital to the owner of a mill in a small town, he said, "I discharged a man yesterday who was probably of that sort. If I had known this I would not have discharged him."

In considering the mental hygiene of the workman, not only his working conditions, but his home conditions and his personal habits must be reckoned with. Any sort of social disorder is likely to interfere with a man's working capacity. When a man is not getting on in his work as well as he should it is time to look into his other relationships and see what can be done to improve his total social adjustment.

A young woman, a typesetter, was brought to the Psychopathic Hospital after an attempt at suicide. For some time her work had been falling off, until she had gotten down to a job that did not pay her a living wage. The doctors said she was not suffering from mental disease and that she was an intelligent girl, that her trouble was a defect in emotional stability, and she needed more variety in her life. She had left home, leaving the support of her invalid mother to her sister, she had been drinking, she told scandalous stories about her clergyman and others until she was so unpopular that her former friends avoided her, and she was physically sick. Unhappy and discouraged, and unable to straighten herself out, she acted upon an impulse to end her life and drank some Paris Green. With the help of a social worker, this girl recovered to such an extent that she very soon found herself a good job at typesetting where she was quickly advanced.

The advice and assistance of a social worker will be resented by an employee,—or anybody else,—if it is offered in a clumsy or mechanical way and without understanding, but it is the business of the trained social worker to offer his services in a way to make them acceptable. Preventive social treatment cannot be given to an unwilling patient. The social worker must know how to arouse the patient's desire to do what is necessary to improve his condition.

In conclusion, social work in relation to the mental hygiene of the individual has two aspects. The first is the necessity for psychiatric social workers trained to assist psychiatrists in the care of mental cases. This is now generally recognized and the need now is for more trained psychiatric social workers. The second aspect of the subject is the opportunity that all social workers have to promote mental hygiene. Theoretically this is now fairly well known and many social workers are seeking instruction in mental hygiene. In the new fields in which social work is opening up, industry and the schools, it is to be hoped and to be expected that the mental hygiene point of view will prevail.

Penalties of the Late Discovery of Tuberculosis

Certain medical results brought out by the Framingham Community Health and Tuberculosis Demonstration are emphasized in a recent communication to the *Journal* of the American Medical Association by Drs. D. B. Armstrong and P. C. Bartlett. Among other findings of interest, they enumerate the principal factors which seem to be responsible for the late discovery of tuberculosis cases. Despite the active measures taken for the discovery and treatment of the disease in Framingham, there was also a mortality of about 21 per cent of the 376 individuals cared for during a period of four years. Deducting those cases where death should have been prevented or at least postponed, it is concluded that 17 per cent is the irreducible fatality rate for such a representative group.

Reasons given by Dr. Armstrong for delayed discovery of active cases are: The recluse type, never receiving any medical attention; patients failing to seek medical advice early, or, if they do, not giving the physician sufficient time to make a diagnosis; occasional failure of physicians to detect disease early; failure of both physician and patient to use all of the services at their command for early diagnosis of tuberculous disease; lack of complete annual medical examination, and lack of annual factory and school examinations.

Application of proper measures directed against postponement in diagnosis is destined to bring about an even further reduction in tuberculosis fatality.

California Investigates Dietaries

By ALICE M. HEINZ, A. M., Formerly Dietitian for the California State Board of Charities and Corrections, Arrayo Sanatorium, Arrayo, Cal.

DURING the spring of 1918, the California State Board of Charities and Corrections, being anxious to learn whether children in public institutions coming under their jurisdiction were being given adequate diets, undertook a series of investigations into institutional dietaries.

A careful study of the menus of twenty-two children's institutions, followed by a discussion with the superintendent regarding the kind and amount of food furnished, revealed a shortage of practically the same classes of foods in each instance and in the majority of institutions studied, namely, a shortage of those foods necessary for proper growth and nourishment of muscle, bone and nerve tissue, those foods rich in protein, mineral matter, vitamines, and fats.

Feeding for Growth

Despite the fact that so much has been said and written about milk being a nearly perfect food, especially for the young growing child, only one of the institutions allowed an adequate amount of milk in the daily diet—namely four cupfuls, the equivalent of a quart. Sixteen institutions allowed less than a pint, (two measuring cupfuls) per day, and of these six were guilty of giving only one cupful or less. Seven institutions allowed a pint or more to a child and another furnished three cupfuls.

Feeding experiments have revealed the fact that a growing child requires and utilizes daily as much calcium, of which milk is the chief source, as is contained in a quart of milk. This indicates that in feeding children about a quart of milk should be allowed each child daily in order to insure the amount of calcium necessary for the proper growth and nourishment of both bones and teeth, to retain perfect control of muscles, and to furnish body juices and tissues with a necessary mineral constituent.

Fresh vegetables, fruits, and cereals supplement the calcium content of a diet to some extent, but these are too limited in their calcium content to furnish an adequate amount.

Besides being valuable for its calcium content, milk supplies very digestible forms of protein and fat and is, especially in a raw state, one of our chief sources of vitamines, now regarded as such important factors in the selections of a proper diet.

Next in importance to milk, come the other necessary protein foods. While these—meat, eggs, fish, and cheese—are interchangeable to a large degree, since they resemble milk in its ability to build muscle tissue, these, too, were found deficient in amounts in the majority of dietaries. Eight institutions served meat daily or almost daily. Eleven served meat three or four times a week. Two institutions served meat two or three times a week. One institution gave no data. The amount of meat allowed per person was not in every case obtainable, but the amount was too small in many instances. One institution gave an adequate amount of meat daily, but in the other homes where the actual figures were obtainable, the average amount of raw meat per person, including waste material, averaged from 3.5 ounces to 1.1 ounce per person per day, on the days when meat was served. One institution in its attempt to economize, gave not only an inadequate amount, namely 1.1 ounce, but an extremely poor choice also, choosing liver, heart, and wienerwurst as a weekly diet and a prepared meat loaf, bought at a delicatessen shop, as a Sunday feast.

As a rule, eggs were used for cooking purposes only, and very sparingly, too. One institution served eggs every other day. Two institutions served eggs twice weekly. About seven institutions served eggs occasionally. Cheese was used sparingly in almost every institution. Two institutions used macaroni and cheese as the chief substitute for meat, a really excellent substitute. Four institutions served cheese about once a week, but the remaining institutions served cheese only occasionally, or not at all.

Beans seemed to be the chief meat substitute, due partly to the fact that they are less expensive than eggs, fish, cheese, and milk, and partly because beans were formerly held in high repute as a meat substitute. Recent experiments have shown that the protein or tissue building substance contained in beans is greatly inferior to that of meat, eggs, milk, fish, and cheese. In addition to this, since beans are difficult of digestion, it is not advisable to include them three times weekly in the dietary of children, as was found to be the case in some institutions.

Fat, which is essential in a child's dietary because the proper growth and development of all nerve and brain tissue and bone marrow are dependent upon its presence, was found too low in many of the diets. Six of the institutions were serving no butter at all. In some cases oleo was served in its place, but even this was given but once a day in a number of institutions. Three institutions served neither butter nor oleo, using either peanut oil, peanut butter, jam, or syrup as substitute. Three institutions served butter once to twice a week. Five institutions served butter once a day. Three institutions served butter twice a day.

Serious Butter Deficiency

This matter of the deficiency of butter in the diet would not be of such importance if it were not for the fact that other fats, such as are furnished by an adequate amount of milk, salad dressing, meats, eggs, and chocolate, were low or lacking, also. Butter substitutes made of vegetable fats are not equivalent to butter in food value, because they do not contain the fat soluble vitamine, which we know to be necessary for growth.

As a rule, most diets furnished enough fruits and green vegetables, especially at the time of the year when the investigations were made and these foods were cheap. Several institutions, however, did not include fruit in the daily diet, while several did not give enough green vegetables. Both fruits and vegetables, particularly the leafy vegetables, supply mineral matter to the diet. Both contain vitamines and also furnish bulk to the diet. It is essential that both should be included in the daily diet.

These studies were made at a time when food supplies were soaring in price and it was found necessary in practically all institutions to curtail expenses, since the allowance for maintenance for these orphan children was really inadequate; however, it also brought out quite clearly the fact that there was a general lack of knowledge of foods and food values and it was largely due to this ignorance that these poor selections were made.

Camp Wildwood a Stimulus for Boys

WITH the coming of Spring one's thoughts turn to the outdoors; the age-old urge of the open country and woods, man's first home, makes itself felt, and fortunate is the boy who finds expression in a camp such as Camp Wildwood, Rockwood, Maine. Directed by Sumner R. Hooper, Harvard '95, the camp is about to enter its eighteenth session.

Senior Baseball team at Camp Wildwood, Kineo, Maine. Organized games play a large part in the camp schedule.

That experience maketh a full man is the belief of the Camp, and its various activities appeal to many different bents. For the boy who loves nature study there are ornithology, biology, and forestry. Tennis, baseball and swimming attract the lover of sports; Indian bands and amateur plays appeal to the dramatic; while romance is found in trips into the wilds. But "fringers," boys who stand on the sidelines, are not popular at Camp Wildwood, and every one is encouraged to participate in the various types of activity.

The accomplishments of the boys in identifying birds, insects, and trees is notable. Over 110 birds, 48 kinds of butterflies, 31 species of moths, 18 classifications of beetles as well as many other kinds of insects were discovered and identified during one session of the camp. Forty-five varieties of trees were found in the vicinity of the camp. The practical use of wood was also discovered—that dry balsam fir was best to make a fire Indian fashion; that dry cedar was best for starting a fire but too flashy to cook over; that balsam and spruce were inferior to birch and hard woods for a steady blaze, and that green birch was the best wood for open fires.

The camp is located near the natural habitat of the mink and muskrat. Tracks of the wildcat and the skeleton of a deer were found in the vicinity while occasionally a buck deer, fawn, and doe have been seen. Young rabbits, ducks, and harmless snakes have become pets of the boys. The Camp is situated on Moosehead Lake on a farm of two hundred acres. The farm furnishes fresh eggs, chickens, lamb, milk, and vegetables for the camp.

One of the organizations is the Browning club, membership in which consists of eight degrees—snow white, cream, cerise, scarlet, pretzel, olive drab, mahogany, and chocolate. The requirements for admission are usually acquired on the tennis courts and ball field, on mountain trips, and at meetings of the club on the beach after a swim. Trophies of the club are proudly carried home in the fall.

The imagination of the boy is appealed to in the organization of Indian bands, nine in number, each with its chief. The tribes navigate the rapids in canoes, hunt for food, and display the same stoicism in the face of danger as their red-skinned ancestors. Farcical drama gives the thespionic their opportunity while Indian ceremony appeals to the ritualistic. Honors are awarded each year for the three best Indian shirts decorated by the "braves."

But while romance is allowed to filter into the hearts and imaginations of the young campers, utilitarian duties are not neglected. *Frondes Silvestres*, the camp weekly, runs a cookery column setting forth recipes and detailed directions for the making of flapjacks and other camp delicacies. There is also a carpentry shop which trains in manual dexterity and gives the boy a chance to use his ingenuity in construction.

The outdoor stimulus to appetite, the healthful living and wholesome food increased the weight of the boys collectively 534 pounds in one two months' session. Seventy-seven of the eighty-six boys showed an increase in weight, the average being four and one-third pounds. Two boys put on twelve and one-half pounds each.

Manual training class at Camp Wildwood, Kineo, Maine

Councilors averaged a gain of eight pounds; only one showed a reduction, while another gained nineteen pounds.

The routine of the camp is well depicted in a retrospective editorial in the camp publication:

All through the winter months pictures from Sandbar Point will be returning. There will be the recollection of reveille with pajama drill and the morning plunge. We shall see again the dining tent with its long tables, its mills and "blat," its seconds, and "Plates down!" and finally the clanging bell, and announcements. So it will run through the day, with forestry and first aid, military drill and tennis, and finally the group of boys seated around the piano for the hymns and prayers just before taps.

But before that routine background will rise pictures that have impressed us most during two months here. For some it will be the struggle of the councilors with the wild torrents of Sam Cole pitch, while those who went to Spencer will see the pond lying quiet in the sunset during the little after-supper fishing trip near the beaver dams. It may be the vista from the summit Kineo, Squaw, or Spencer that stands out most vividly; or it may be the council ring lighted only by the blazing logs, while the hundred braves sit in Indian skins to challenge and to report adventures. A marshmallow roast, or an evening entertainment may be the event that made the deepest impression.

A Summer Camp for Employed Young People

By CAPTAIN PERCIVAL CONDIT JONES, Acting Commandant, John Wanamaker Commercial Institute, Philadelphia, Pa.

THE John Wanamaker Commercial Institute of the John Wanamaker Store, Philadelphia, which is composed of the younger employees, boys and girls between the ages of fourteen and eighteen years, organized for educational purposes, has for twenty-three years maintained a summer camp at Island Heights, N. J., on Barnegat Bay.

"The Barracks" used as mess hall, recreation, and administration building, J. W. C. I. Camp, Island Heights, N. J.

The camp is recreational, with physical and military training with discipline.

During the months of July and August the camp is occupied first by the boys and then by the girls. The boys are divided into two groups, each group spending two weeks at the camp; and the girls in like manner.

The camp, consisting of about fourteen acres of land owned by the Wanamaker organization, is located in the healthful pine belt of New Jersey, and combines the seashore and country. It is not far from "Lakewood," the famous winter resort. The parade ground and athletic field are covered with beautiful grass, while the portion of the camp where the tents are pitched is gravel.

There are two buildings on the grounds, a large one known as the "Barracks," which is used as a mess hall, recreation and sleeping quarters, and a smaller building called the "Annex," used for sleeping purposes only. All of the boys live in tents as do also the majority of the girls as they like the novelty of living in the open air. But any who desire to do so have the privilege of sleeping in the Barracks.

Meals are served in the mess hall.

The day is devoted to drills, athletics, body building exercises, swimming, hiking, boating, motoring, and rifle practice.

A parade, in uniform, is held in the early evening, after which the cadets assemble in the recreation hall for the "amusement hour."

The camp is self-governing, under the supervision of an executive staff. It is policed thoroughly every morning by cadets assigned to that duty; then morning inspection is held to see that each cadet, tent and company street is clean and sanitary. Cadets are taught the proper care of themselves and of the property under their care. Camp sanitation and personal hygiene are given special attention.

The tents are seven by nine feet, each with board floor, cots and kit boxes for personal belongings. A fly (or extra flap) is attached to each tent, making it absolutely water proof. During the day all tent walls must be kept rolled up.

All sports and exercises are under the supervision of the athletic officer; in fact, all the activities are under the supervision of competent authorities.

The camp life is greatly enjoyed by the young people and is eagerly looked forward to from year to year. It greatly benefits the young people to live in the open air and sunshine, with plenty of exercise and good food. They return to business full of enthusiasm and good health, and show greater interest in their work.

Each cadet is required to take part

Passing in review, girls' battalion, J. W. C. I. Camp, Island Heights, N. J.

"Reviewing party" inspecting boys' battalion, J. W. C. I. Camp, Island Heights, N. J.

in some form of athletics. Those who cannot swim are assigned to comrades to be taught.

Athletic contests and military drills between the various companies are held. Points are given for merit and points are taken off for breaches of discipline. Special prizes are given to the winners of the various contests. To each member of the unit showing the greatest efficiency is given a blue bar bearing the word "Efficiency."

One striking feature of the camp is the truck garden where vegetables of various sorts are raised for the table. This makes it possible to serve fresh vegetables where otherwise canned goods would have to be used.

The camp has been pronounced by many prominent military men and others who have visited it to be a model of its kind.

The following daily routine is carried out by the boys, with some slight modification for the girls.

BOYS' DAILY ROUTINE

A.M.		10:00	Swimming call
6:15	First call	10:15	Recall.
6:50	Reveille.	P.M	
6:55	Assembly	12:30	Mess call.
7:05	Police call (signal to clean up camp).	12:35	Assembly.
		2:00	Attention (athletics).
7:30	Mess call.	2:55	First call.
7:35	Assembly.	3:00	Swimming call
8:00	Call to quarters (inspection).	4:30	Recall.
		5:30	Mess call.
8:15	Drill call.	5:35	Assembly.
8:25	Sick call.	6:45	Drill call.
8:30	Attention (athletics).	6:50	Assembly.
		7:30	Recall.
9:00	Recall.	7:35	First call.
9:05	Guard mounting.	7:40	Assembly.
		7:45	Adjutant's call
9:15	Officers' call.	10:00	Tattoo.
9:30	First sergeants' call.	10:15	Call to quarters.
9:55	First call	10:30	Taps.

Armour Camp at Round Lake

ON THE banks of Round Lake, a mile and a quarter in diameter and forty-five miles from Chicago, is Oval Lodge, the country home and pleasure resort of the employees of Armour and Company. For the last two years Oval Lodge has been thrown open to employees and their families who desire to spend their vacations in the quiet of the country, yet among friends and acquaintances. At the beginning of the vacation season a schedule is prepared and reservations are made. Fishing and boating, hunting and tramping in the woods, or outdoor sports such as tennis, volley ball, basket ball, and golf are provided for in the parks of Round Lake.

In addition to accommodating one hundred house guests at one time, Oval Lodge has a dance hall, reading room, and screened porches. A matron is in charge at all times, and a trained nurse, whose services may be had should occasion arise, is in constant attendance.

Many of the girls, especially from the general office, take advantage of the recreational opportunities afforded by Round Lake over the week ends during the summer season. On national holidays such as Decoration Day and the Fourth of July, special programs are arranged at the Lodge.

An effort is made in the office management, under whose supervision the operations of Round Lake fall, to see that every employee has an opportunity to visit the lodge at least once each season, and special holiday programs are usually occasions for individual invitations to some of the members of the organization who have not previously become acquainted with the restfulness of the country home.

Round Lake was purchased by P. D. Armour many years ago before commercial refrigeration had been made practical. The lake was utilized as an ice field and a large ice house was constructed on its shore. When artificial refrigeration came into general use, Round Lake, abandoned as an ice field, lay idle for some time. Several years ago its value as a recreation grounds for employees began to impress itself upon the minds of those responsible for the personnel of Armour and Company. The old ice house was remodeled, changed, and added to until there emerged a comfortable, rambling country lodge. The adjacent land was parked, tennis courts were laid out, boats and bathing suits were provided so that the lake itself might be utilized to its fullest advantage, a nearby golf course was made available, roads were improved for those employees who chose to drive to the lodge, and every convenience available at a modern resort was added so that Oval Lodge might become a real recreation center.

Oval Lodge at Round Lake, Ill., recreation camp for Armour and Company employees. Utilized as an ice field before commercial refrigeration became practical, Round Lake has now become a center of social activity and the old ice house converted into a comfortable, rambling country lodge.

Iowa State Juvenile Home

THE vicissitudes of establishing a State Juvenile Home are entertainingly told by A. E. Kepford, Superintendent of the Iowa State Juvenile Home at Toledo, Ia., in the *Iowa Bulletin of State Institutions.* The matter of getting the buildings into condition, renovating and cleaning them, of buying furniture, food, obtaining cooks, matrons, and assistants all rested on the superintendent. One difficulty was that no funds could be granted to the home until children were actually in residence there. This technicality was overcome by receiving a few days after the opening of the Home a child from Waterloo whose application had been on file.

Playing "leapfrog" at the Iowa State Juvenile Home. Every effort is made to minimize the institutional aspect and to give homeless children a real home.

The struggle to keep cooks, to educate them that all food doesn't grow in cans, and that variety in edibles is a desirable culinary rule was an onerous duty. But with wasteful cooks, slovenly ones, and undependable ones came a few who were conscientious, economical,—some with institutional training. In the early days of the Home when temperamental cooks left without notice, other members of the staff donned aprons and meals were served on time as usual.

Budgets, estimates, items, voucher numbers, reports and revenue statements, balances and invoices, came to be vital words in the superintendent's vocabulary,—not only words but facts. After submitting "supplemental estimates" to the Board of Control as well as reports lacking in the requisite detail, they evolved a system whereby everything used in the State Juvenile Home was to have an item number. With such a system the institution hopes to avoid in the future, letters such as it received from the board of control stating "The board and the purchasing agent spent four solid hours in checking and revising your estimates. We are sure it would take a storeroom four times as large as the present storeroom at your institution to house the supplies estimated for, were we to purchase same."

The hiring of assistants also was a problem to the new home. Young women who felt called to work with the young delinquents often lost their ardor when washing dirty little faces was found to be part of the job.

Adequate arrangements have been made for the health of the children in the Iowa State Juvenile Home. According to a recent letter from Dr. Kepford to The NATION'S HEALTH all children upon admission are vaccinated against smallpox unless they can show proof of a recent effective vaccination. They are also given an immunizing dose of one thousand units of antitoxin against diphtheria which has greatly lessened the prevalence of this disease. The Home expects to introduce the Schick method of diphtheria control within a short time.

Dr. A. A. Race, a Toledo physician and overseas veteran, is on the medical staff of the Home. Dr. Royal F. French, eye, ear, nose and throat specialist of Marshalltown, is also a member of the staff. The removal of nose and throat obstructions has been found to aid greatly in the handling of semi-delinquent children. Dr. French is at present making a study of certain chemical re-agents in eye work.

A psychiatric study of the 141 children in the home has been made by Dr. Lawson G. Lowery, assistant director of the State Psychopathic Hospital at Iowa City, and by Dr. John B. Morgan, psychiatrist at the same institution. Their findings have also been valuable in the discipline and direction of the children.

"The State Juvenile Home might properly be called a laboratory of democracy, a sort of an experiment station for the development of citizenship out of some most unpromising material," writes Mr. Kepford in conclusion. "Here the semi-delinquent and frequently the semi-normal child is segregated in an environment approximating home as nearly as an

Girls' Cottage, State Juvenile Home, Toledo, Iowa.

institution can do this. Here the state is turning its attention to the sources of citizenship and striving to place the child in the stream of self-government. If the state will take care of the child, the child will take care of the state. This axiom of patriotism can find demonstration in every good American home."

The Iowa State Juvenile Home believes in the innate goodness of every child. It realizes that many of its charges are helpless, defenseless, neglected, sometimes handicapped by mental deficiency or moral delinquency. It attempts to provide a home where homeless children can gain encouragement and by the proper care and conservation get a new hold on life.

Flies as Food Poisoners*

THE writer has positive knowledge that a marauder has been prowling around. He belongs to a very large band of secret enemies of mankind who live in the filthiest sections of our cities and country-side and spread out from thence on their death dealing missions. They are not deliberate enemies of our race, but are impelled by the most powerful natural instincts, survival and propagation. They prowl around homes and enter them in search of food and shelter. They know no other right than their own.

They steal food in quantities so small their loss is hardly noticed, but at the time of theft they implant by deliberate acts filth containing often the deadliest diseases, and they are most likely to leave these death dealing germs upon choicest foods. These marauders are deadly enemies of the human race through their very instinctive acts. During the Spanish-American War they were persistent camp followers, and largely through their ravages Camp Chickamauga was decimated by typhoid fever and similar diseases.

During the recent war the writer visited one army camp where the cases of typhoid and dysentery were daily becoming greater and found that practically the only cause was a most aggravated condition of filth inhabited by millions of these deadly marauders, who were everywhere in the camp, especially in the kitchen and mess halls.

The common house fly, *Musca domestica*, is perhaps the deadliest of all human enemies. It breeds in manure and excreta of all kinds, being very fond of stable manure and human offal. It also breeds in garbage and organic waste. It haunts stables, chicken yards, privies, sewers, garbage pails and dumps. It loves to visit man and animals. A discharge of mucous or pus will attract it to the spot. It is very fond of open sores, and likes to visit unprotected babies and feed around their mouths and eyes and ears. But almost nothing can keep it away from savory foods, once it enters the house.

Science has proved the fly to be a common carrier of many kinds of deadly disease germs, such as typhoid, dysentery, septicemia, ophthalmia, cholera, and anthrax. These germs live for weeks and months in the body of the fly and are deadlier for having so lived. Every drop that the fly excretes on food or a wound contains multitudes of germs. Some of these find suitable culture media and grow, thus begins the danger that may result in death.

The flies that enter your house may have traveled many miles and come directly from the worst plague spot in the whole community.

*We are indebted to W. Dwight Pierce, Ph.D., Managing Director, Biological Department, The Mineral, Metal and By-Products Company, San Mateo, Cal., and editor of Sanitary Engineering, for this material and for the poster reproduced herewith.

The General Assembly of Virginia passed the following bills proposed by the Children's Code Commission of the state at the close of its last session: A group of bills providing for (a) public relief for children in their own homes to be administered by the local boards of public welfare; (b) regulating child-placing and child-caring institutions and agencies; (c) regulating maternity hospitals; (d) regulating boarding houses and nurseries for children under six years of age. No State appropriation was made for the operation of the mothers' aid law.

The League of Red Cross Societies is moving its headquarters from Geneva to Paris, thereby reducing expenses $15,000 yearly.

DANGER!
DO NOT ADMIT THIS CALLER!!
MR. MUSCA DOMESTICA, ALIAS COMMON HOUSE FLY,
IS BEING SOUGHT BY FEDERAL AND STATE OFFICERS
ON THE SERIOUS CHARGES OF POISONING WHOLE TOWNS.
WHOLESALE MURDER ATTEMPTED.
ONE OF HIS HAUNTS
HE BREEDS HERE BY MILLIONS
HE HAS BEEN SEEN PROWLING AROUND MANY HOMES
AND IS PARTICULARLY FOND OF LITTLE CHILDREN.
PARTICULAR CHARGES AND DESCRIPTION OF HIS ACTIVITIES ARE GIVEN BELOW TO AID ALL CITIZENS IN SEEKING OUT AND CAUSING THE APPREHENSION OF THIS DANGEROUS CRIMINAL AND PREVENTING HIS ENTERING THEIR HOMES.
THE HOUSE FLY HAS BEEN PROVEN TO CARRY IN ITS MOUTH, ON ITS FEET AND IN ITS BODY, THE GERMS OF
MANY DEADLY DISEASES, SUCH AS
TYPHOID FEVER
PARATYPHOID FEVERS
DYSENTERY (ALL TYPES)
CHOLERA
COLITIS
FOOD POISONING
DIARRHEA
DIPHTHERIA
TUBERCULOSIS
BUBONIC PLAGUE
TULAREMIA
LEPROSY
ERYSIPELAS
SEPTICAEMIA
ABSCESS, SUPPURATING WOUNDS
ANTHRAX
GANGRENE
INFANTILE PARALYSIS
ORIENTAL SORE
CONSUNCTIVITIS
TRACHOMA
AND EGGS OF PARASITIC WORMS
IT BREEDS IN ALL KINDS OF FILTH, AS
STABLE MANURE
CHICKEN MANURE
HUMAN EXCRETA
GARBAGE
ANIMAL AND VEGETABLE WASTE
IT LOVES TO VISIT BODY SORES, TEAR GLANDS, MILK AND ALL KINDS OF FOOD, AND BABIES' FACES.
WHEREVER IT STOPS TO VISIT
IT DROPS VOMIT OR EXCRETA
CONTAINING SOME KIND OF GERMS.
SOME OF THESE GERMS LIVE FOR MANY DAYS IN THE FLY'S BODY
THE FLY CAN FLY MANY MILES FOR FOOD
W. Dwight Pierce
CONSULTING ENTOMOLOGIST, San Mateo, Calif.

Eye Clinics Conserve the New York City Child

Clinics, Under Bureau of Child Hygiene, Coordinate with Schools

By M. B. BEALS, M.D., Supervising Oculist, Department of Health, New York City

THE eye clinics of the Bureau of Child Hygiene, Department of Health, New York City, were organized in 1902, to care for the large number of cases of trachoma and cases of suspected trachoma found at that time in the public schools and for several years the work of these clinics continued to handle almost exclusively the treatment of and operation of these cases. The eye clinics are now nine in number, located, with one exception, in public schools, five in Manhattan, two in Brooklyn, one in the Bronx, and one in Queens, maintained under the jurisdiction and in accordance with the rules and regulations of the State Board of Charities. Only children whose parents are unable to pay a private physician are accepted for treatment. The eye clinics of the Bureau of Child Hygiene have been reorganized during the past three years and there exists a system of close coordination with the Division of School Medical Inspection to produce a great increase in efficiency over the old organization and to produce the following results: (1) The detection and treatment of all contagious eye diseases of school children; (2) the detection and correction of refractive errors of school children not already under private treatment; (3) the examination of all candidates for and the supervision of the Sight Conservation and Blind classes of public schools. The staff consists of:

The Director and Assistant Director of the Bureau of Child Hygiene, in full charge of the clinics of all boroughs.

The Borough Chiefs of each borough in control of the administration of the clinics of each borough.

The Supervising Oculist charged with the supervision of the technical work of the staff of the clinics of all boroughs and in direct charge of the Sight Conservation and Blind Classes.

The Supervising Medical Inspector, field head of the work in schools.

The Supervising Nurses, field head of nurses in clinics and schools.

Oculists and Nurses in each clinic.

Medical Inspectors and Nurses in schools.

The character of the work of the eye clinics has changed greatly in the last three years.

In response to the recognized harmful effects of refractive errors on the mental development of the growing child, the refraction work of the clinics has increased enormously, and the clinics have a highly developed staff of ophthalmologists in refraction of young children, mentally defective children, and partly sighted children.

In the line of experimental research, groups of hundreds of mentally defective children, "habitually left back" children have been refracted, and those with refractive errors have been properly fitted with glasses and the cases followed up for months and years for data on the effects of eye strain on the child mentally.

The Backward Child

There are several reasons why these clinics are needed in addition to the several large public eye dispensaries of this city.

First: Correct refraction of the young child is a tedious and tiresome task, and in nearly all eye dispensaries the refraction, for this reason, is passed on to the novice or lowest assistant in the clinic, and, in some cases, to the optician who has the contract to fill the prescriptions for the glasses.

Refraction of the very young child, the backward child, and the mentally defective child calls for the very highest skill on the part of the oculist and should never be entrusted to the novice or optician.

The oculists of the Child Hygiene clinics are highly trained oculists with years of experience in refracting these cases.

Second: It has been impossible to obtain sufficient facilities in the public eye clinics of the city to handle the great mass of refraction work.

The Sight Conservation and Blind Classes are under the direct supervision and care of the Supervising Oculist.

All candidates for these classes are examined by an oculist of our clinics and the report sent to the supervising oculist who makes the final recommendation as to the assignment of the child to a normal, sight conservation or a blind class, and, in those cases not under private treatment, which is the case in the great majority of these children, he assumes the active treatment of the condition of the eyes found, if any treatment is indicated.

Sight Conservation Classes

A vast amount has been accomplished by this intensive systematic work in the Sight Conservation Classes. About two thousand candidates have been examined. One hundred ten were assigned to the Blind Class, where the blind child is taught the Braille system of finger reading.

Eight hundred and forty-five were assigned to the Sight Conservation Classes which are equipped with special large print books, raised maps, most favorable lighting, individual assistance from a special teacher to permit these partly sighted children to perform as near regular grade work as possible without injury to their already crippled eyes.

All of this class of children, who are not under private treatment, and where it is indicated for the existing condition, are cared for by a cooperative plan between the special teachers of these classes and the supervising oculist of the clinics. In this way it has been possible to accomplish a great amount of improvement in many cases, as, by this cooperation, the child is kept constantly under observation and treatment, which overcome the great obstacle to results in the treatment of this class of cases in public eye clinics with no official connection with the Department of Education.

Results have been particularly shown in the removal of corneal scars, by the prolonged application of negative galvanism; clearing up old trachoma cases, keeping the progressive myopes under constant observation, and closely following their sometimes rapidly changing refractive condition, which are so important in these cases.

The system, now in operation between the eye clinics and the schools, to care for the eye cases without loss of school time to the child, and to avoid confusion and overcrowding at

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An examiner for the Department of Health, New York City, examining the eyes of one of the pupils in the city schools. The city department of health through its Bureau of Child Hygiene in cooperation with the Division of School Medical Inspection maintains nine eye clinics.

the clinics, is for the school nurse or school principal, teacher, social worker, or attendance officer, to call up the nearest eye clinic by telephone and make an appointment for a certain number of cases on a certain day.

It is required that the parent sign a consent card, and that the parent or some older person accompany the child if a mydriatic is to be used.

The school nurse, social worker, attendance officers, etc., often bring groups of these children to the clinics saving the parents the loss of time from their work or other home duties.

During the year ending July 1, 1920, these clinics did the following work:

Visits to Clinics	79,253
New Cases	19,639
Refractions	30,128
Prescriptions for Glasses	10,021
Medical Prescriptions given	84,068

The sight conservation work in the public schools is: (1) To provide conditions under which the "partially sighted" children may study without injury to the eyes; (2) to provide supervision and treatment by an oculist of the Bureau of Child Hygiene.

The equipment for these classes consists of special large print, proper light, raised maps, adjustable desks, and individual assistance by the teacher, who prepares all the work in large easily read copy, which permits the partly sighted child to keep pace with its normal grade without further loss of vision.

Constant supervision and treatment are afforded by the oculist of the Bureau of Child Hygiene of the Department of Health, who examines the eyes of all candidates and assigns the child to a blind, sight conservation or a normal class. He makes a full diagnosis and prognosis and outlines the kind and quantity of work that may be permitted for each individual child. Also effort is made to improve the conditions found, by indicated treatment, whatever be the condition, disease or refractive error.

Each child suffering from any eye disease or refractive error is instructed to go to its private oculist for treatment, if financially able, but with the great majority of children in these classes this is not the case, in which event, if the parents consent, the child is treated in the Child Hygiene Special Clinic for these classes.

The oculist's care of these classes has been under the direction of the Bureau of Child Hygiene of the Department of Health for about six years, with most gratifying results in a large number of cases. The hearty cooperation of Miss Moscrip, the inspector of the blind and sight conservation classes, and her splendid corps of teachers has been of great assistance. The blind classes continue to teach the Braille method and other usual educational work for the blind. At present there are six blind classes and twenty-eight sight conservation classes.

Some highly practical results have been obtained since the Bureau of Child Hygiene took over this work—results that would not have been obtained, if we had not taken over this work—as, for example, through the combined efforts of principals, teachers, medical inspectors and nurses after special instructions by the supervising oculist a large number of children with a vision in the better eye of 20/70 or worse, were found, taken to our clinics, and hundreds were returned to school with practically normal vision after treatment or refraction. These children had nearly all been through the usual routine of medical school inspection, but due to defects somewhere in the system—either in the original vision test, follow-up work, or a lack of cooperation by principals and teachers, due, in most cases, to a lack of a thorough understanding of the importance of this work, there had been failure to get them under proper treatment.

Of those admitted to the Sight Conservation Classes with a vision that could not be improved at once by refraction sufficiently to do normal work, many have been improved by

International Newsreel Corp.

The eyes of all school children are examined and those suffering from defective vision are assigned to eyesight conservation classes which are equipped with special large print books, raised maps, and excellent lighting systems

combined treatment and proper use of eyes to such a degree that they have been reassigned to normal classes.

All children with a vision in the better eye of 20/70 or worse are candidates for the sight conservation class. If the service of the oculist cannot improve this vision, the child may be assigned to the sight conservation class. If the vision is improved to better than 20/50 by glasses or treatment, the oculist decides if sight conservation work would be beneficial in each case, as in many cases of progressive myopia the vision can be improved with glasses to a greater degree than 20/30 or even normal vision, 20/20.

A final recommendation is given by the oculist in charge of each case as to the use of eyes to be permitted, with full instructions as to glasses, revisits to the oculist, etc., as by this method only can most children be kept under most favorable conditions.

The educational feature of the work of the eye clinics is becoming more and more prominent not only with the parents and children and teachers of the sight conservation classes, but with principals and teachers throughout the city, many principals today have but a very vague idea of what a sight conservation class is, but nearly all are intensely interested and cooperative after hearing the subject fully explained with the other very important activities of the eye clinics, especially the subject of the harmful effects of refractive errors on the mentality of the growing child.

By far the most common causes of

loss of vision by the children of the sight conservation classes is progressive myopia. Progressive myopia is a subject with which the general practitioner and the school teacher should be far more familiar with than many now are. They should be sufficiently familiar with this subject to be able to explain intelligently to parents and children why the myopic eye needs so much more careful and constant attention than other forms of refractive errors.

It is here that the sight conservation class is of inestimable value in cooperating with the oculist in saving these near-sighted children from irreparable injury to their vision.

The constant strain of the near-sighted eye can be relieved by wearing glasses, if the glasses are properly fitted, combined with the proper use of the eyes, but it is only by the co-operation of the family physician, teacher, social worker, and school nurse that the parents and children can be educated up to the point of giving their eyes proper and sufficiently sustained care.

It is clearly explained to the parents in nontechnical language the ciliary muscle spasm of myopic eyes of children, and, therefore, the necessity for the use of a mydriatic in the proper refraction of these cases and it is thus made clear to them why the child should be taken to the experienced oculist and not to the optician, who, under the law, is not permitted to use a mydriatic because he is not a physician.

Those having control of children of school age should know the importance of proper light and the harm done by working the growing eye in improper light. The starting of near-sight in a normal eye is undoubtedly very often caused by the eye strain necessary to read and study in a poor light.

The question of light received but scant consideration in our schools. I have seen many class-rooms lighted very badly by gas on all days but the very brightest, and the study room of one of our high schools in the auditorium having practically no daylight. No more favorable setting could be imagined for the development of myopia, blepharitis, headaches, and all that long list of neuroses caused by eye strain in the growing child.

It will be necessary to do a great deal of educational and propaganda work before we shall be able to correct these defects in our schools and guard against repetitions in new buildings. Many of the schools used for night schools are not provided with proper lighting equipment, and the work done in these schools by the pupils under this poor illumination is producing the same bad results as in the poorly lighted day schools.

A large part of the good results of the work of the Sight Conservation Clinic is obtained by skillful refraction, which is the fitting of glasses.

Refraction of the partly sighted child, the mentally defective, backward, or very young children requires the highest skill of the experienced oculist and is wholly beyond the skill of the oculist of little experience and of the optician. This work calls for the constant use of "skiascopy" or the "shadow test" by which the measurement of the refraction of the eye is made without any assistance from the child, as in these classes of children the child can be of but very doubtful assistance to the oculist. After considerable practice a high degree of accuracy is obtained by this method of refraction.

A great deal of harm may be done to defective eyes by their improper use and harm may be done to the physical well being of the child from the effects of eye strain in producing reflex nervous symptoms.

Out of 132 ungraded or mentally defective children whom I refracted, and for whom the glasses were procured, twenty-four were found to be normal mentally after relieving their eye strain and giving them improved vision, and more than 65 per cent showed decided mental improvement, and many showed physical improvement.

On the child of normal mentality defective vision is a great handicap as is shown in every large school or group of schools. In a group of four hundred "habitual left back" children found in a large New York school, more than one hundred showed decided refractive errors and I prescribed glasses for about 110. One hundred of this number procured the glasses, and in less than three months some very pleasing results were obtained. Out of the one hundred more than 98 of the "habitual left backs" passed the regular school examination, many skipping classes, and one boy far behind his grade for age, skipped five grades on the examination. Of the ten who did not have their prescription for the glasses filled, only one was promoted. In the same school we had the walls of a small room nearly covered with test papers showing the startling improvements made in writing, drawing, and arithmetic in remarkably short periods by the children of all ages after correction of refractive errors.

Vitamines and Nutrition

The essential nature of the vitamine content of the diet is now generally conceded, and agreement reached in regard to the classification of vitamines, but another point often overlooked is that there needs to be maintained a suitable relationship between the vitamine content and the other dietary constituents, states Dr. M. J. Lewi in the *New York Medical Journal*. The preparation of foods in order that their vitamine content may remain unimpaired, safeguards as to deterioration through aging, and deficiency of vitamines because of food habits or idiosynchasies or improper combinations, are all to be considered.

Lewi suggests that a number of indefinite complaints of infants and adults may be due to a partly deficient diet and the remedy lie in the administration of vitamines. There is, therefore, a definite place in medicine for some preparation that will contain the vitamines in concentrated form, for co-operation on the part of the pure chemist to determine standards of purity, and to make observations regarding the physiologic effects of the isolated vitamine which may differ from those observed in connection with the naturally occurring foodstuffs.

A Tip for Girl Hikers

Underwood & Underwood.

Wear both silk hose and woolen ones when hiking is the advice of Miss Nell Creer, photographed at the end of a day's tramping through Zion National Park, Utah. Wear silk hose next the skin; then heavy golf stockings of pure wool—keep them clean and unwrinkled is the formula that might well be followed by all feminine travelers of the road.

Fighting Malnutrition in Iowa Rural Schools

The Hot Lunch Affords Good Means of Supplying Children the Proper Foods

By AMY L. DANIELS, Ph.D., Child Welfare Research Station, University of Iowa, Iowa City, Ia

IN THE first selective draft 28 per cent of all the men called were rejected as unfit to bear arms. Many were underweight; many showed signs of undernourishment; others were suffering from defects which should have been corrected in child-

Children need three warm meals a day

hood. A large number of these might have been avoided if proper precautions had been taken.

Statistics gathered recently in New York City showed that at least one-third of the children in the public schools were so much below the normal standard of growth as to call for special nutritional care. Recent reports concerning the conditions of children in the country schools of Iowa indicate that they are no more physically fit than their city cousins.

A country nurse found twenty-three out of a class of twenty-nine more than 10 per cent below weight while another report from a rural school stated that all were over 10 per cent below standard. A recent summary of reports on more than 110,000 Iowa school children shows that 20 per cent of the city children are seriously under-weight while in the rural schools 30 per cent of the pupils are in this classification.

No child should be allowed to go to school without an adequate breakfast.

Causes of Malnutrition

Faulty home and school hygiene, infections, diseased teeth and tonsils, and enlarged adenoids are common causes of undernutrition among children. The most frequent cause of malnutrition, however, is improper food, sometimes too little, but more frequently too little of the right kind. Children suffering from undernourishment come from the ranks of the well-to-do as often as from among the poor. Underweight in the child should always be the signal for examination by a competent physician.

An adequate diet for the child should include at least three-fourths of a quart of milk a day; some foods which supply iron, such as prunes, spinach, chard, eggs, oatmeal, dried beans, peas, lentils; fruits or vegetables at each meal to supply bulk and certain of the vitamines and the mineral material needed for building bones and other body tissues; it should include also protein, present in eggs, milk, cheese, fish, meat, dried beans, and peas; energy giving foods, such as butter and other animal and vegetable fats; starch, found in bread, cereals, potatoes, and macaroni; and sugar, found in dried fruits, honey, and cane sugar.

Other food habits of the child should also be watched, such as eating too rapidly; drinking water to wash down imperfectly chewed food; lunching between meals. Not enough sleep and not sleeping with open windows hastens the vicious circle of malnutrition.

Children grow from small individuals to large ones and their rate of growth is largely dependent upon the kind and amount of food they take. They need, therefore, foods which supply material for bone, muscles, nerves, and energy. Growing boys of fifteen often consume very nearly twice the amount of food their fathers need.

Children Need Warm Meals

The kind of food which school children of different ages require varies little, and only in proportion to their size and the amount of exercise they take. School children need three warm meals a day. The food required should be evenly distributed among the three meals, one third of the protein and one third of the energy material being given at each meal.

The supplementary hot dish in the rural school.

The problem of supplying proper food at noon to the children in the rural schools is especially difficult as most of the pupils live too far to go home for lunch, have had early breakfasts, and have walked or ridden long distances. Their lunches, packed at home, must of necessity be cold and are often dry, lacking vegetables and milk because of the inconvenience in packing them.

Great care should be taken in packing the lunch box that it be attractive to the child's appetite. The box should be one that is easily cleaned. Most children prefer the folding box or a small pasteboard one that may be thrown away. The lunch boxes should be kept not too near the stove or register nor in a place where the food will freeze in winter. A shelf with a drop curtain makes a satisfactory arrangement. Wrapping each article of food in oiled paper keeps it in palatable condition. Variety may be introduced in the filling of sandwiches and by substituting for cookies or cake, baked custards, puddings, and preserves which may be safely transported in small glass jars with a screw top.

To supply the vegetables and the milk in the school lunch is the purpose of the hot dish in the rural school. The dishes suggested are so simple that pupils of the upper classes may do all the work involved with but little instruction from the teacher. Older girls may also act as waitresses.

Menus such as the following require only a little time to prepare and are comparatively inexpensive:

Week	Monday	Tuesday	Wednesday	Thursday	Friday
I.....	Cocoa	Cream of bean soup	Scotch broth	Cream celery soup	Scalloped corn
II.....	Cream potato soup	Scalloped rice and cheese	Scalloped potatoes	Vegetable soup	Fish chowder
III....	Cream corn soup	Cream of chicken soup	Cocoa	Cream spinach soup	Corn meal or rice or hominy with milk
IV.....	Cream tomato soup	Delmonico potatoes	Cream pea soup	Salmon soup	Corn chowder

The foregoing menus require weekly supplies as listed below:

Week I	Week II	Week III	Week IV
14 quarts milk	10 quarts milk	6½ quarts milk	15 quarts milk
2 cups fat (drippings, butter or butter substitute)	2 cups beef drippings, butter or butter substitute	1 cup butter or butter substitute	2 cups butter or butter substitute
4 lbs. mutton or beef from neck	6 lbs. white fleshed fish or	1 large chicken	3 cans salmon
1½ bunches celery	2 lbs. salt cod	1 bunch celery	1 lb. cheese.
4 carrots	1 lb. cheese	3 carrots	5 onions
4 medium sized onions	1 bunch celery	2 medium sized onions	2 cups bread crumbs
2 cups bread crumbs	1 lb. carrots	2 cans corn (No. 2)	3 cans corn (No. 2)
3 cans corn (No. 2)	6 medium sized onions	1½ cups flour	2¾ cups flour
4 turnips	2 cups bread crumbs	2 tbsp. salt	½ lb. salt pork
1 cup flour	1 lb. turnips	½ tsp. pepper	5 tbsp. salt
4 tbsp. salt	2½ cups flour	2 qts. cream or top milk	¼ tsp. pepper
1 tsp. pepper	1 lb. salt pork	2 cans spinach (No. 2)	2 cans tomatoes (No. 2)
6 eggs	5 tbsp. salt	6 qts. fresh spinach	4 cans peas (No. 2)
3 cups dried beans	½ tsp. pepper	1 lb. dates, figs or prunes	2 tbsp. sugar
1 cup pearled barley	10 medium sized potatoes	6 cups rolled oats	26 medium sized potatoes
½ tsp. soda	1 bunch parsley	1 cup cocoa	½ tsp. soda
1 cup sugar	3 cups rice	1 cup sugar	
1 cup cocoa			

The equipment for the noon-day lunch will vary with the type of school. The individual equipment, bowl, cup and saucer may be brought from home but less confusion will result if all dishes are owned by the school.

1 coal oil stove	1 butcher	1 "mystic mit"	
1 portable oven	2 paring	1 dish mop	
1 aluminum or granite kettle, 8-quart	2 forks	2 dish pans	
1 saucepan	1 small	1 dish drainer	
1 saucepan, 2-quart	1 large	24 cups and saucers	
1 double boiler, 6-quart	2 strainers	24 soup bowls	
4 white enameled bowls	1 puree	24 serving plates	
2 2-quart	1 colander	24 soup spoons	
1 5-quart	1 wooden spoon	24 teaspoons	
1 pint	1 scrubbing brush	24 forks	
1 ladle, long handle, holding one cup	1 can opener	1 quart measure	
4 spoons	2 baking dishes, 3-quart	1 asbestos mat	
2 tablespoons	1 dipper	1 Dover egg beater	
2 teaspoons	1 tea kettle	1 measuring cup	
1 meat grinder	1 water pail	1 wire potato masher	
3 knives	2 trays	1 fireless cooker	
	6 dish towels	6 packages paper napkins (500 each)	
	2 dish cloths		

Serving the hot dish.

The articles listed above have been found to be necessary to equip a school serving twenty-four children.

That the children should pay a small sum, enough to defray the cost of the material used in the hot dish, has been suggested as one means of financing the project. Other suggestions are that the school or some local organization pay the expenses. But as food is more plentiful than pennies in the country homes, the most feasible plan seems to be that of having the children bring the food from home, each home in turn being responsible for one meal.

Teaching the children how to eat is often quite as important as serving the improper food. Order and cleanliness can be taught the children. Hands should be washed before lunch; the dishes should be arranged in an orderly manner on a paper napkin on the desk. A certain amount of freedom should be allowed the children and a happy atmosphere encouraged.

Though the hot noon-day lunch may increase the school budget, it will decrease the cost of education for there will be fewer failures and fewer children repeating grades, and the benefits to the children both mentally and physically far outweigh the cost and trouble in preparing it.

Medical Excuses from Physical Training

In an effort to secure the cooperation of physicians and limit the needless excuses of students from physical training, Dr. C. Ward Crampton, director of physical training in the New York City schools, has devised a form on which the physician may recommend exercises which will be beneficial for certain conditions, may recommend that certain exercises be omitted, and that others be done with care.

The blank has proved of great service to the physical training department and of benefit to the pupils. Many physicians do not realize that exercise is and should be given to every ambulent cardiac case, states Dr. Crampton, nor do they realize that it is beneficial to the great majority of asthenic conditions that are more or less pathological and common to adolescents. Dr. Crampton found that in New York City many high school students, principally girls, brought excuses from physicians requesting relief from physical training. By means of letters of explanation to family physicians, the physical training director was able to gain their cooperation.

The form letter which is addressed to the director of physical training and signed by the student's physician is a request that physical training exercises be adjusted to suit the condition of the student, the diagnosis being stated.

Diathermy in Medicine and Surgery

Diathermy is a descriptive term applied to a form of high-frequency electric current which generates a heat that is distributed through (dia) the tissues and not localized to the skin surface. It has been in use only since 1907. Special apparatus is necessary. Diathermy, according to the author, Elkin P. Cumberbatch, is applied medically to stimulate physiological activity, relieve neuritis and benefit high blood pressure. Surgically, diathermy is used to destroy diseased tissue and new growths by a process of coagulation. Cumberbatch describes many instances and illustrates cases where diathermy is used as the complete treatment. In America, however, diathermy or electro-thermic-coagulation has been used in conjunction with radiotherapy and surgery. To those who may not be familiar with the identity of the author, it may be stated that Cumberbatch is an English authority upon Medical Electricity and is one of the editors of the Journal of Radiology and Electro-Therapy, the standard English publication. He is the successor of Dr. Lewis Jones at St. Bartholomew's Hospital in London.

"Diathermy, Its Production and Uses in Medicine and Surgery" is the collection, with additions, of a series of papers published in the above mentioned English Journal. A careful reading of the text proves the serious purpose of the author to record his experimental work with diathermy upon tissues and diseases. The limitations imposed upon the method are healthy acknowledgements of its values when intelligently applied.

There has been much confusion among medical readers in America, and possibly mistaken notions among electro-therapists, upon the identity of diathermy. They may think that D'Arsonval current or high-frequency currents or fulguration or hot-sparks were the aliases of diathermy.

Therefore to classify matters, electrically speaking, it may be well to indulge in the clear exposition of diathermy which Cumberbatch affords in this monograph.

C. V. Mosby Company, St. Louis, 1922

Paper Toys for Sick Children

FURNISHING entertainment to convalescent children in hospitals is often a problem to the nurse who must devote her time not to one child alone but to many. Ordinary playthings are too heavy for weak little hands, are unhygienic, or, as in communicable disease cases, must be destroyed. At such a time the newspaper comes into its own as material from which fascinating toys of every description can be made. Bakers' and soldiers' caps, trench headgear, and sunbonnets are easily constructed from old newspapers and, like the magic caps of the fairy tales, project their wearers into a make-believe world. Sun hats and sunbonnets which protect the sensitive eyes of the sick child, are also easily made under the direction of mother or nurse.

The newspaper doll family is multitudinous and varied. Captain January, a "newspaper" man, has amused many a sick child. The News family is indeterminate in number, but Mother, Father, and Baby News are well known members. All these little people have pleasant faces for the sick child dislikes ugly, cross expressions. Paper dolls are especially suitable as companions for children in isolation hospitals or confined to their homes with contagious diseases for they can be burned every day and replaced at low cost by new ones.

A brown paper bag has endless possibilities for the amusement of the sick child. A mask that slips over the head can be made by cutting big slashes for the eyes and nose. Shopping bags were made by a group of ward children as a surprise for their mothers who were coming to see them during visitors' hour. Not content with furnishing the purses, the children cut out money. Small, round discs meant coins to them and very few asked for pencils to mark their denomination.

A graphophone was made from a paper bag by a Junior nurse. Beds, chairs, houses, stores, garages, rocking horses, refrigerators, fireless cookers, and many other unique articles for the doll's house were made by a class of junior nurses under the direction of Mrs. Mary Barker, Supervisor of Kindergartens, Worcester, Mass. This class submitted original models ranging from a circus wagon with a tiger behind the paper bars to dainty open-work boxes for handkerchiefs and gloves. A student nurse submitted a bungalow set in a garden with tiny barn, henhouse, walks, and driveway, all surrounded with a garden fence. So perfect was it in detail that it resembled an architect's model. Paper fans made of newspaper pleated and tied at one end are light and easy for the sick child to use.

Somehow these absurd toys strongly appeal to children. A first grade teacher in the Worcester Public Schools, who gave a lesson on the method of making a newspaper doll, claims that the reactions have been most interesting. Dolls made of newspaper, handbills, tissue and wrapping paper, and wall paper have poured into her school room. Some were dressed in paper, some in cloth, some in lace. To that wise first grade teacher, the intrinsic value was in the effort and imagination that had been put into the making of the doll by a six-year-old child.

(Continued on page 17)

Electrical Injuries

THE increasing casualties resulting from the advance in the use of electricity, show the need for a study of prophylaxis of electrical injuries, comments the *Lancet* in a recent issue. Since 1903 such accidents have been notifiable in Switzerland and figures show that in 1920 the number of injuries from electrical causes had doubled. The incidence, however, has not increased in relation to increased electrical installations.

Classification of electric current into "strong" and "weak" according to their action on the human body is considered by Jaeger to be fallacious, as the danger to life depends upon many other factors. Fatal cases have been reported in the German literature from the therapeutic application of a sinusoidal alternating current of fifty volts or under. Besides the strength, frequency, and nature of the current, and the resistance opposed to it, the danger of any particular current is influenced by the following factors: (1) the site of entrance into the body; (2) the duration of the contact; (3) the size of the area under contact; (4) the physical condition of the individual (status lymphaticus increases the susceptibility); and (5) the psychic component. Expectation of a current diminishes its effect, while surprise increases it.

Were it not for the isolation afforded by the skin, the human body would be a good conductor of electricity owing to its fluid and salt content, he points out. The resistance of the skin varies with its thickness and dryness.

Meteorological conditions have great effect on the number of electrical accidents. Nearly twice as many occur during the hot months of the year as during the cold. Excluding those caused by lightning, the explanation is apparently to be found in the increased formation of perspiration in the summer months. Jaeger considers it unfortunate that even in the latest text books it is stated that 100 to 150 volts are harmless while those of 200 and over are dangerous. Cases of death from currents of 50 volts have been recorded under conditions of dampness.

Expectancy of shock decreases susceptibility while surprise increases it. An example of this was an engine driver who would catch hold of a 500 volt clamp with both hands and let go again as a bet for a glass of beer. As often as the beer was forthcoming he repeated this game without harm, but one day he came accidentally into contact with the clamp under the same conditions and was killed.

The clinical aspects of electrical injuries are characterized by great variability in their immediate symptoms, in their course, and in their late effects. The immediate effects can be divided into general, local, and distant. "'Electric shock'" according to Jaeger "is associated with unconsciousness of variable duration which simulates concussion and is often followed by a maniacal stage of cerebral irritation. This condition may occur even when the current did not pass through the central nervous system and is probably reflex in origin. The local effects consist chiefly in burns at the sites of entrance and exit of the current. The lesions are characterized by anemia, dryness, and insensitiveness due to massive coagulation necrosis. Subcutaneous empysema has often been noted but the cause of its production is not clear. Shedding of the superficial layers of the skin is common, but is not comparable with that produced by ordinary burns. The skin comes off as a complete layer with the hair, attached to the conductor which produced the shock or hanging to the clothes covering the part. . . . . Sometimes the internal organs, heart, and kidneys suffer, the affection probably being due to toxemia as in ordinary burns."

Extending necrosis plays an important part among the late effects, the writer points out, the primary necrosis extending in area and depth and not infrequently attacking the underlying vessels.

In regard to prophylaxis for electrical injuries, the Paris Academy of Medicine has issued the following warnings: (1) Never touch any part of an electric lighting or heating apparatus with wet hands; (2) never handle any part of an electric lighting or heating apparatus while touching water taps or pipes or any other metal which will make a good contact with earth; (3) fix electric fittings as far as possible away from water fittings.

Michigan Improves Laboratory Service

The Bureau of Laboratories in the State of Michigan averaged thirty-four specimens to every physician in the state during the past year and increased laboratory service throughout the state is planned for the ensuing year.

"The new laboratory will not be surpassed by any state laboratory in the country," declares Dr. R. M. Olin.

Narcotics from Many Nations

Keystone View Company.

Some of the dope confiscated from smugglers by the Narcotic Division of the U. S. Custom Service in New York City. The little phials at the left contain German cocaine; the bag of envelopes contains German heroin for Italian trade; the small round bottles contain Japanese morphine; the big chunks are raw opium from Asia Minor; in the background on the box is a Chinese opium layout; the small toys are of Chinese prepared opium; then comes Hash Kesh from India; the square cans and bottles contain American heroin, cocaine and morphine; next is the English morphine, while the small pill boxes contain American cocaine and morphine which the illicit drug stores trade on fake doctor's prescriptions.

Passing Fads in the Manufacture of Dentifrices

Not a Medicated Dentifrice. Years ago Colgate & Company refused to meet the artificial demands for a highly medicated dentifrice. They followed scientific dentists in the contention that drugs are harmful to the mucous membrane of the mouth. Such drugs should not be used in a dentifrice except in the treatment of pathological conditions, and then only under the advice of a dental practitioner.

Not an Acid Dentifrice. Once more Colgate & Company's stand is with the scientific members of the medical and dental profession who refuse to use an acid tooth paste. They recommend to their patients a dentifrice with high cleansing qualities, pleasant to taste, containing a thorough non-gritty cleanser.

A generous supply of samples will be sent to professional friends, post-paid, on request.

Welfare Dept.,
COLGATE & CO.
Established 1806
New York, N. Y.

Sanitation in National Parks

IN VIEW of the great danger of the spread of disease to all States through the hundreds of thousands of persons who visit the national parks annually and the lack of adequate sanitary facilities and medical attention in the park, the bureau upon the request of the Secretary of the Interior in the latter part of the fiscal year undertook to assist the National Park Service in providing the necessary medical attention and to improve the sanitary conditions in the parks in accordance with investigations made by service engineers.

The field work was placed in charge of Associate Sanitary Engineer H. B. Hommon and Junior Assistant Sanitary Engineers A. P. Miller and L. D. Mars, assistants, Acting Assistant Surgeon W. E. Crawbuck was assigned to Yellowstone National Park to furnish the needed medical attention and to carry out certain sanitary inspections. A conference was held with the superintendent of the Sequoia National Park in regard to increasing the existing water supply, improving the sanitary condition of the privies and the collection of garbage. As a result, garbage cans and a regular garbage collecting system will be installed, privy vaults will be disinfected with a spraying machine using cresol, and the water supply will be increased by constructing a dam across the creek which is the present source. Storage tanks will also be built at the main camp to collect and store water during the night.

A large scale map of the main camp grounds was prepared by Junior Assistant Sanitary Engineer Mars for the use of park officials in locating campers during the summer. This will also be used in laying out a sewerage system and a disposal plant.

At Yellowstone National Park samples of water from the main sources were analyzed by the service engineers in a laboratory set up by them. As soon as the examination of the water supplies was completed a detailed sanitary survey of the hotels and camps in the park was made and a report prepared. It was found that the water supplies at the beginning of the season were, as a rule, satisfactory, but that the disposal of sewage from the hotels was very unsatisfactory; that the privies of the Yellowstone Camp Company and in the Government automobile camps were very unsatisfactory; that the mosquitoes were so numerous and active that visitors were glad to get out of the park; that the garbage in the Government automobile camps should be collected in cans and properly disposed of; and, finally, that a thorough inspection of all places serving food or drinks to either visitors or employees in the park should be made at least every two weeks.

The detailed work to be accomplished by Junior Assistant Sanitary Engineer Miller in Yellowstone National Park during the summer is as follows: (1) Prepare plans and estimates for sewerage systems and disposal plant for Government camps, Yellowstone Camp Company and Yellowstone Hotel Company at Old Faithful Junction. (2) Assist Yellowstone Hotel Company in laying out a new sewer for their Lake Hotel and obtain necessary data for designing disposal plant, including sterilizing apparatus. (3) Measure sewage flow from Lake and Canyon Hotels to determine the capacity of sewage-treatment plants for these places and others of a similar character in the park. (4) Collect a second series of samples from all the water supplies in the park in July, and again in August if time permits. (5) Prepare estimates and plans for mosquito eradication at the hotels and camps where the nuisance was the greatest. (6) Assist the sanitary inspector of the park in locating water supplies for those automobile camps now without water except at long distances from the camps. (7) Accompany Acting Assistant Surgeon W. E. Crawbuck on all inspection trips to the hotels and camps, the latter to include Government camps of all kinds. All reports of inspections to be signed by both officers and to be submitted in duplicate to the superintendent of the park.

The work to be accomplished by Acting Assistant Surgeon W. E. Crawford in Yellowstone National Park during the summer is as follows: (1) Once in every two weeks, and oftener if necessary, visit all places in the park serving food or drinks to visitors or employees and make detailed report on sanitary conditions found. This work is to include kitchens, dining rooms, privies, toilets inside hotels and outside in the camps, handling of water in hotels and camps, and in general to note the sanitary condition of all places visited. (2) Visit the dairies or milk dealers and make complete inspection of premises. This work is to include instruction in regard to cleanliness in handling milk, with special reference to properly sterilizing milk containers. The care and attention of the sick among the producers and dealers is to be emphasized. (3) Inspect the unloading stations at the entrances to the park to learn whether proper methods of handling perishable goods are observed. (4) Obtain all the data possible relating to the cause of diarrhea or dysentery in the park. One or the other of these disorders or diseases has been more or less prevalent in this park as well as in all the other national parks in previous years, and it is the intention to collect data from all the parks in regard to this matter.

Junior Assistant Sanitary Engineer Mars assisted the Oregon State Board of Health in investigating interstate carrier waters prior to making certain mosquito investigations in Mount Rainier National Park.

Studies of Malnutrition of Baltimore Children

During the latter part of the last fiscal year, two hundred underweight children in Baltimore, all having one or more physical defects, were selected as a group for the study of the effect of the correction of physical defects on growth and development. Corrections included defective teeth, enlarged or diseased tonsils, adenoids, defects of hearing and vision, hernia, bronchitis, and phimosis.

Of these 200 cases, 153 children have had all reported defects corrected, 11 have had one or more corrections made, 17 refused correction and 19 left school before any corrections were made. To secure these results 255 visits were made to the two schools, 518 visits were made to homes, 410 visits to clinics and hospitals, 21 visits to welfare agencies and 6 visits to physicians.

The children in the group were weighed at frequent intervals. It was found that with only one exception every girl, after the correction of her physical defects, gained at a more rapid rate than the normal average.

Though the number of children studied is too small to make these results conclusive, they are highly suggestive. This investigation furnishes an important link in the evidence to the hampering effect of physical defects on growth and development and the benefits to be gained by their correction in childhood.

Cantilever Stores

Cut this out for reference

Akron—11 Opperman Arcade
Albany—Howell's Sol. Stone, 15 N. Pearl
Atlanta—Benedicts, 162 Peachtree
Atlanta—Carlton Shoe & Clo. Co.
Auburn & Geneva, N. Y.—Dey
Austin—Carl H. Mueller
Baltimore—325 No. Charles St.
Battle Creek—Bahnman's Bootery
Bay City—D. Brudali Co.
Birmingham—219 North 19th St.
Boston—Jordan Marsh Co.
Bridgeport—W. K. Mellor
Brooklyn—414 Fulton St.
Buffalo—Co. Main St.
Buffalo—Hubert Shoe Co.
Cambridge—Cantilever Shoe Parlors
Cedar Rapids—Fox Kerbaugh Co.
Charleston—J. F. Condon & Sons
Charlotte—221 Piedmont Bldg.
Chicago—Ed. Schuette Co. 11 E. Randolph
Chicago—The McAuley Co.
Cincinnati—Grand Pacific—7th Floor
Cincinnati, S. C.—Watson Shoe Co.
Cleveland—Mc. Shoe Co. & B.
Dallas—Leon Kahn Shoe Co.
Davenport—R. M. Neustadt & Sons
Dayton—The Rice Kendall Co.
Detroit—224 Foster Bldg.
Des Moines—W. L. White Shoe Co.
Detroit—F. J. Jackson, 11 E. Adams
Easton—H. Mayer, 145 Northampton
Elizabeth—Gilpin Shoe Co.
Elkhorn—W. O. Shoe Co.
El Paso—Popular Dry Goods Co.
Erie—Weschler Co., 916 State St.
Evanston—North Shore Bootery
Fall River—D. F. Sullivan
Flushing—Wm. C. Goodyear, 37 Main
Fort Dodge—Schill & Habenicht
Galveston—Feldman's
Grand Rapids—Herpolsheimer Co.
Hagerstown—Bucks Shoe Store
Harrisburg—Orner's, 24 No. 3d St.
Hartford—86 Pratt St.
Houston—Clayton's, 803 Main St.
Huntington, W. Va.—McMahon Diehl Co.
Indianapolis—L. S. Ayres & Co.
Jackson, Mich.—Palmer Co.
Jacksonville—Golden's Bootery
Jersey City—Bennett's, 411 Central Ave.
Kansas City, Kan.—Nelson Shoe Co.
Kansas City, Mo.—300 Altman Bldg.
Knoxville—Spence Shoe Co.
Lancaster, Pa.—Frye-Hull-Kline
Lansing—F. N. Arbaugh Co.
Lawrence, Mass.—C. H. Woodman
Lexington, Ky.—Dodge-Rose-Fall Co.
Little Rock—Poe Shoe Co., 302 Main St.
Los Angeles—505 New Pantages Bldg.
Louisville—Boston Shoe Co.
Lowell—The Bon Marche
Mckeesport—Wm. F. Sullivan
Milwaukee—Brouwer Shoe Co.
Minneapolis—21 Eighth St., South
Mobile—Level Best Shoe Store
Montgomery—Campbell Shoe Co.
Morristown—G. W. Melick
Mt. Vernon, N. Y.—A. L. Rice & Co.
Nashville—J. A. Meadow & Sons
Newark—897 Broad St. (Opp. City Hall)
New Britain—Sloan Bros.
New Haven—153 Court St. (2d floor)
New Orleans—Joe Levy—St. Roch
New Rochelle—Wm. [illegible]
New York—22 West 59th St.
Norfolk—Ames & Brownley
Overland—205 Heil Bldg.
Omaha—1708 Howard St.
Passaic—Kroll's 57 Lexington Ave.
Pawtucket—Evans & Young
Peoria—Lehman Bldg. Room 20
Philadelphia—1300 Walnut St.
Pittsburgh—The Rosenbaum Co.
Pittsfield—Fahey's, 234 North St.
Plainfield—M. C. Van Vorst
Portland, Me.—Palmer Shoe Co.
Poughkeepsie—Louis Schoenberg
Providence—The Boston Store
Richmond, Va.—Seymour Sycle.
Rochester—148 East Ave.
Rockford—Lloyd Boot Shop Co.
Saginaw—Goodell Brater Co.
St. Louis—516 Arcade Bldg. (Opp. P.O.)
St. Paul—[illegible] 5th St.—Lowry Hotel
Salt Lake City—Walker Bros. Co.
San Antonio—Guarantee Shoe Co.
Santa Barbara—Smith's Bootery
San Diego—The Marsten Co.
San Francisco—Phelan Bldg. (Arcade)
Savannah—Globe Shoe Co.
Seattle—Baxter & Baxter
Shreveport—Phelps Shoe Co.
Sioux City—The Pelletier Co.
South Bend—Ellsworth Store
Spokane—The Crescent
Springfield, Ill.—A. W. Klaholt
Springfield, Mass.—Forbes & Wallace
Stamford—L. Spelke & Son
Syracuse—[illegible] S. Salina St.
Terre Haute—Otto C. Henning
Toledo—LaSalle & Koch Co.
Trenton—H. M. Voorhees & Bro.
Tulsa—Lyons' Shoe Store
Utica—Room [illegible] Bldg.
Waco—Davis Smith Bootery
Waltham—Rufus Warren & Son
Washington—1319 F. Street
Waterbury—Reid & Hughes Co.
Wheeling—Geo. R. Taylor Co.
Wilkes Barre—M. F. Murray
Worcester—J. C. MacInnes Co.
Yakima—Kohls Shoe Co.
Yonkers—Lou Klein, 22 Main St.
York—The Bon Ton
Youngstown—B. McManus Co.
Zanesville—J. B. Hunter Co.

Other cities

A flexible shoe for your flexible foot

Nature, in her wisdom, designed your foot arch to flex when you walk. Why restrain it in shoes that are rigid and without natural lines? "The foot is like a cantilever spring," wrote a noted doctor. "The Cantilever is the most comfortable shoe I have ever worn," said a trained nurse; and another woman said, "In Cantilever Shoes I feel as though I were flying."

It is because of the *flexible shank* and *natural lines* of the Cantilever Shoe that you will derive such comfort from it. And because of its graceful appearance and its harmony with this Spring's shoe styles you will see it worn wherever daytime costumes are worn. Fine workmanship, splendid materials and reasonable prices add to make the Cantilever desirable.

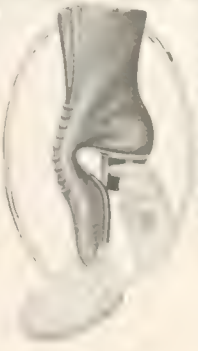
The [illegible]

[illegible] every step. [illegible] Ave. Stores [illegible] Mercer.

[illegible] pointing out the importance of a [illegible]

[illegible] well and spare yourself the misery that [illegible] Cantilevers will keep them [illegible]

[illegible] dealers [illegible] Mass. & [illegible] Ave. [illegible] N. Y.



Cantilever Shoe

Juvenile Court Investigations

A COMMISSIONED medical officer for full-time duty and an acting assistant surgeon for the physical examination of females served with the juvenile court of the District of Columbia throughout the greater part of the fiscal year continuing the investigations begun in the early part of 1920. Complete physical and mental examinations, including the Wassermann tests, were made on each subject unless a part of such examination had already been made.

The results of these examinations were considered in connection with the family and personal history and court record in arriving at an understanding and classification of each individual examined. In each case a brief summary was made, with recommendations, for the use of the court and probation officers in the subsequent handling of the case. Practically all children appearing officially before the court were examined, an important point from a sociological standpoint.

The total number of children examined during the fiscal year was 684. Of the 49 white females examined mentally, 26 were normal, 3 mentally deficient, 3 retarded, and 17 showed constitutional psychopathic inferiority. There were 242 white males, the mental examination of whom showed 134 normal, 38 retarded, 23 mentally deficient, and 47 of constitutional psychopathic inferiority. Among the 300 colored males, 150 were normal, 90 retarded, 28 mentally deficient, 5 epileptic, 2 unclassified, and 25 showed constitutional psychopathic inferiority. Of 93 colored females, 62 were normal, 19 retarded, 6 mentally deficient, 2 epileptic, and 4 showed constitutional psychopathic inferiority.

The value that may result from medical work in connection with juvenile courts may be summed up as follows: (1) The detection and possible correction of physical defects at a period in life when they are most amenable to treatment. (2) The detection of mental defect, psychopathy, or other deviations from the normal at a period in life when corrective measures are of most value. For those subjects who do not profit by average training, adequate preparation can be made for special classes, manual training, or institutional control. (3) It affords medical examination and makes possible treatment for a group of people who probably stand most in need of such aid. (4) A high type of medical work carried on in connection with juvenile court is probably of considerable value in the way of public health educational work in that each year for a large number of children it is a practical illustration of what thorough medical examination and treatment consist of. (5) If capably performed it is of value to the court and probation officers in the proper understanding and handling of these children and at the same time increases the confidence of the probationers and their families in the efforts made in their behalf.

Tuberculosis Association

THAT the health work carried on by the National Tuberculosis Association is instrumental in saving one hundred thousand lives a year was brought out by Hon. Charles E. Hughes, Secretary of State of the United States in his address before the Eighteenth Annual Meeting of the Association which met in Washington, D. C., May 4-6. Paying tribute to the achievements of the National Tuberculosis Association in checking a "terrible scourge of mankind," Secretary Hughes said that in no field of effort was there so much promise and opportunity as in that of conserving the public health.

After stating that he had been connected with the anti-tuberculosis movement in New York State since 1907, Mr. Hughes said: "According to the statistics, which apply to New York State outside of New York City, the death rate in this period has fallen from 129 to 86, a decrease of 34 per cent. That means, as I understand it, that last year in that part of New York State there were 2,700 fewer deaths than there would have been at the rate for 1907." In the District of Columbia, Mr. Hughes pointed out, the death rate among negroes from tuberculosis is less than half of what it was in 1880, and the death rate among whites is less than one-third.

On the general work of fighting tuberculosis Mr. Hughes said:

"It appears that since your Association was formed in 1905 the number of hospitals and sanatoria for tuberculosis have increased seven-fold and that the number of dispensaries has been multiplied by twenty-four, and that the number of public health nurses has risen to 10,000.

I understand that the death rate from tuberculosis in the registration area of the United States has decreased almost exactly one-half since this association began its work, which means 100,000 fewer deaths last year in the United States than there would have been had the earlier rate continued.

The collateral benefits of this movement are of the greatest importance. I do not speak simply of the obvious economic results. Rather I should emphasize the general attention to sanitation and the corresponding advance in conditions of well-being. To those who have labored in this movement, the nation is under lasting obligation.

In his annual report Dr. C. J. Hatfield, managing director of the Association, called attention to the fact that there were still about a million persons ill with active tuberculosis and that about one hundred thousand were dying annually from the disease.

Godias J. Drolet, statistician of the New York Tuberculosis Association, made an address, saying that tuberculosis killed almost twice as many men as women. He said the difference was due to the conditions under which they worked.

John A. Kingsbury, Secretary of the Milbank Fund, announced that a large part of the income from ten million dollars would be used in the next few years to demonstrate in New York State how tuberculosis could be controlled in communities.

Dr. Charles J. Hatfield resigned as managing director of the Association and Dr. Linsly R. Williams was appointed to succeed him. Dr. Hatfield will devote most of his time to local tuberculosis and health work. Dr. Williams was formerly Deputy Commissioner of health in the state of New York and for the last four years has served as director of the Rockefeller Commission on the Prevention of Tuberculosis in France. The following officers were appointed for the coming year: Dr. Lawrason Brown, president; Dr. Charles J. Hatfield and Dr. J. W. Pettit, vice-presidents; Dr. George M. Kober, secretary; and Mr. Henry B. Platt, treasurer.

The following directors were also elected: Dr. J. H. Peck, Iowa; Dr. David R. Lyman, Connecticut; Dr. W. L. Dunn, North Carolina; Dr. A. M. Forster, Colorado; Mr. John A. Kingsbury, New York; and Dr. James Alexander Miller, New York.

This Is a Weak Foot—

A Condition Most Prevalent Among Women

The fashionable types of shoes, pointed-toe hosiery, excessive use of the feet in walking or standing, pregnancy, heavy weight bearing, etc., are responsible for the vast number of cases.

Remove predisposing cause and apply mechanical treatment and corrective foot exercises. It will help you to build a reputation in your locality. These foot troubles are found everywhere.

Successful orthopedists and general practitioners are prescribing

Dr Scholl's
Corrective Foot Appliances

which have now been placed in leading shoe stores and surgical instrument houses throughout the country.

These dealers have also been instructed in the proper method of adjusting appliances to the foot and shoe in accordance with the principles of the inventor and designer, Dr. Wm. M. Scholl.

Write for Pamphlet—"Foot Weakness and Correction for the Physician," and chart of corrective foot exercises. The subject will amaze you.

THE SCHOLL MFG. CO., 213 W. Schiller St., Chicago, Ill.
NEW YORK *TORONTO* *LONDON*

Textbook of Nursing Procedures

A new "Textbook of Nursing Procedures," by Anna C. Jamme, R.N., is a series of demonstrations prepared to supplement the nursing manual and to place before the student of nursing the method of carrying out practical procedures before they are put into actual practice in the care of the patients. The material is simply presented and may be of convenience to the various schools of nursing. The equipment necessary for a demonstration room is tabulated, in addition to the articles required in each demonstration and the procedure to be followed, as, for example, the cleaning of utensils and sinks; the cleaning of the medicine closet. There are forty-one demonstrations enumerated, covering those in common use, given in the order of the course, the more complex and difficult problems being treated in the later lessons. The book is well illustrated and special points of difficulty are expanded and emphasized in the notes.

Public Health Surveys

The sanitary or public health survey is a very important part of any attempt to improve local or general health situations. It is perhaps of the greatest use where there is a widespread ignorance of sanitation, but is also very effective in the better types of communities. Preventive measures must be based upon facts to be effective, and one of the principal objects of a sanitary survey is to reveal impending dangers and on the positive side, opportunities for new public benefits.

A recent book published by Murray P. Horwood on Public Health Surveys, what they are, how to make and how to use them is really a sort of textbook intended to serve as a guide to those who contemplate the making of public health surveys. An introduction by Professor George C. Whipple emphasizes the importance of various factors such as publicity, training, and reports, which, read in connection with the rest of the book, call attention to many possible pitfalls.

The book itself outlines methods to be used in making the survey, the sources of information to be found, the organization of the community for its survey, the character of the water supply; drainage, sewerage and sewage-disposal; the collection and disposal of refuse; the milk supply; the inspection of restaurants, lunch rooms and food stores; housing; school sanitation. Two chapters which should perhaps be particularly emphasized deal with the preparation of the report and the methods of obtaining results from the survey.

A public health survey may be valuable in stimulating interest in conditions affecting health and health education; is almost the only means for obtaining any accurate picture of actual conditions; and finally is a powerful weapon for introducing health repairs. The Rockefeller Foundation made surveys primarily for its own information, while in Taunton and Quincy, Mass., surveys were made entirely for private information. Oklahoma, on the other hand, has thoroughly organized and conducted her surveys under popular auspices with the idea of following up the findings made. The public health survey can be a powerful instrument if properly wielded, but its best use depends on the thoroughness, accuracy, planning, and administration of the actual proposed work. The present book is not exhaustive but should be suggestive and useful to an interested audience. Quite a comprehensive bibliography is included which will enable further research to those so desiring.

John Wiley & Sons, Inc., New York, 1921.

Alaska Needs Physicians

An attempt is being made by the United States Bureau of Education to do what it can to check the ravages of tuberculosis and other diseases among the native races of Alaska. For this work physicians and nurses of good educational qualifications, successful experience, upright character, and altruistic motives are desired. The field is one of great interest and of unlimited opportunity for the health worker.

A physician in the Alaska Medical Service is required to supervise one of the small hospitals maintained by the Bureau of Education or, under the Superintendent of Schools, to make tours of inspection of the schools in his district, furnishing medical relief to the inhabitants and endeavoring to maintain sanitary conditions in the homes and villages. The salaries paid to physicians in the Alaska Service range from $1,800 to $2,800, and those of nurses from $800 to $1,400 per year. The Bureau defrays traveling expenses. Persons desiring these positions are not required to pass an examination, but must make application on the form prescribed by the U. S. Bureau of Education.

Devine's Social Work

SOCIAL work as a serious vocation and also as an avocation is attracting an increasingly large number of men and women desiring to devote their time and thought to the problems of poverty, ignorance, disease, and crime. Dr. Edward T. Devine, formerly of the New York School of Social Work, has recently published a book, one of a series, which seeks to explain the relationships and problems of the larger social movements of industry, education, and other related departments. There are few people who can speak with such intimate knowledge and authority as can Mr. Devine and his attempt at an objective and critical study from what he terms a detached point of view brings some very interesting thoughts.

The book itself is designed primarily as a text, the first part being devoted to the general development and scope of social work. The author has divided his study into four parts: the relief of poverty; the care of the sick, disabled, and defective; the treatment of criminals and the relief of living conditions. Various agencies and facilities for work are discussed, the methods of treatment, general considerations relating to coordination and supervision, finance, and preparation for work.

The book is very evidently the result of years of thought and effort. Parts of it stand out as particularly keen analyses not only of institutional methods for meeting a given situation or problem but as a criticism of the entire theory of such institution. The problem of old age dependence is one to which generally we give too little attention. The almshouse is as Mr. Devine says "a very profitable introduction to social work."

There are in all studies or comments remarks or ideas to which exceptions can be made, differences raised, and points argued. We feel that the author is right in noting the transfer of attention as to the problems of social work from moral to physical defects or weakness. The problems here in large part center around the hospital, special dispensaries, or clinics. The shift here has brought about an increased public concern for the adequate treatment of the sick and a more intense demand for the elimination of these diseases which are preventable. The ideal of social work is to make it unnecessary.

A new authoritative book on yeast

Written by a physician for physicians, this brochure discusses the manufacture, physiology, chemistry and therapy of yeast.

The growing interest in yeast as a therapeutic agent has made it essential that physicians should have at their disposal some book of reference which will summarize in an authoritative way the present known facts about yeast.

This information, so necessary for the busy practitioner, has been ably brought together in a book entitled "The food value, therapeutic value, manufacture, physiology and chemistry of yeast, also a symposium on vitamins."

The chapter headings speak for the variety to be found in this treatise. These headings are:

What is yeast?
The manufacture of yeast
Yeast Therapy
When and how to take yeast
Care and properties of a yeast cake
Boils, Furunculosis, Carbuncles, Acne
Constipation
General Debility
Arthritis and Rheumatoid Conditions
The vitamins
Yeast vitamin B
The vitamin C
The vitamin A
Fermentation and Enzymes
The value of yeast as food

The FLEISCHMANN COMPANY take great pleasure in announcing the publication of this book. They will be glad to send free of charge a copy of this book to any physiological chemist, hospital or physician who will write to The Fleischmann Company, Dept. Y-5, 701 Washington St., New York, N. Y.

The Child in the Foster Home

The New York School of Social Work has recently published a monograph, the second in a series of studies on child welfare, entitled "The Child in the Foster Home," by Sophie van S. Theis and Constance Goodrich. This monograph is a discussion of homes used by the New York State Charities Aid Association in its work of providing for dependent children in foster homes. It is an exposition not of ideal standards but of practical experience. The placing of dependent children in foster homes for adoption or for a more or less indefinite period necessitates: First, careful investigation of the child's family and personal history; second, an investigation of the foster family; third, supervision of the child after he is placed in a foster family.

In the first investigation, special stress is laid in the investigation of the family history upon feeblemindedness, insanity, epilepsy, and venereal diseases. The social history including the conditions which necessitated permanent separation of the child from his own relatives, the child's background, the kind of care he has had, and the legal claim which the agency has upon him, are discussed in detail. Especial study is made of the child himself, his personality, habits, and health. A point is made of the mental and medical examinations.

The inquiry into the circumstances and character of the foster parents is discussed in detail with special emphasis on the necessity for checking all information given by the family by interviewing references, usually including the family physician.

A large part of the monograph deals with problems which may arise in the process of settling the child in his new environment. The supervision of the child's health, the use of clinics and occasional examinations by the staff doctor, is an important feature.

All phases of the work are amply illustrated by full case records quoted practically verbatim.

Vocational Civics

A new book, entitled "Vocational Civics", brought out by Frederick Mayer Giles and Imogen Kean Giles as the report of a study of occupations as a background for the consideration of a life-career, is the best compilation of data we have seen by which to estimate the probable future in a given business or profession. Although we always felt the need of a simple and comprehensible presentation of this subject, somehow vocational manuals and textbooks were not quite satisfactory. Almost invariably they have stressed the skilled mechanical trades, omitting professions and other life occupations. The authors, both of whom are competent instructors of long standing, treat this very important phase of education very broadly. The book itself is divided into thirteen chapters, outlining each profession or trade and approaching it from many angles. Each occupation is treated (a) from the qualification standpoint; (b) preparation; (c) opportunities and advantages; (d) disadvantages; thus giving the instructor and the learner a new way as to how to "find himself" and become a valuable member of the community.

The Macmillan Company, New York, 1922.

Broader Training Urged For Dentists

Dean Smith of the Harvard Dental School recently declared as in favor of two years of college work as a prerequisite to admission in a first class dental school. The recent scientific development in dentistry and the problems still awaiting solution require that the same sort of advance which is taking place today in medicine shall be applied to dentistry. Sheer technical competence of the past must be supplemented by a training which takes into account the chemical relation between diet and teeth. The relation between the decay of teeth and rheumatism, neuralgia, heart diseases of various kinds, and many other ailments. The whole science of dentistry needs to be put on a firmer scientific foundation.

Science in Social Work

IN "THE Scientific Spirit and Social Work," the author, Arthur James Todd, has attempted to show some of the problems of the social worker, the general trend of the social movement and social reforms. If a profession is to be established by the social worker she must objectify problems and activities to ascertain relative values and importance. Back of all true social work is the desire to serve but the "new quality which science adds to the impulse to serve is ordered intelligence and the discipline of knowledge." Social work may become a profession, if by that we mean that in addition to having an ideal of promoting social welfare, social workers will eventually become really qualified to do their work as no other profession can. "It will really become truly scientific only when every social worker sets as his ideal not drawing his meed of praise or money for turning off the day's work with as little friction as possible, but knowing the truth as it is and adding to the sum of truth for the creation of a world more worth living in and working for. To work for the truth that shall make you free—that is the scientific spirit."

Mr. Todd has very keenly analyzed the confusion of sentimentality and social reform, the part which the apostles of softness, the "sob squad" have played, bringing very just criticism and contumely on the heads of well meaning benevolents. Sentimentality, "the emotional ooze," in the field of child welfare for example has killed a thousand times more babies than Herod did. Nearly anybody with a slight equipment of passing good looks and a bit of nerve can organize and foist upon the credulous public a charity for babies or children. "Save the Babies" will wring tears and dollars from thousands who would pass unheeded a call to "Prevent Infant Mortality." Social reform to be effective must be thought out and carried through with a scientific spirit utilizing every worthy quality of human nature but more and more retreating from the "driveling appeal to the froth in human nature." "When faith and love, vision and disciplined intelligence can be welded into one, we shall have such a corps of expert leadership that the very gates of hell shall not prevail against us."

Social problems arise first of all from faulty adaptation. These may be met in individuals by the case worker or by the group through legislative or preventive means. Mr. Todd has gathered some very profitable material on the dead center in social work, the problem of labor turnover, the haphazard methods of training and supervision and the problem of salaries and wages in social agencies. These have all received careful attention in industrial and financial circles and certainly should be considered more thoroughly in the field of social work. It might be well to straighten our own house before we seek other fields to conquer.

The Macmillan Company, New York, 1921.

Sherman's Polyvalent Vaccines

VACCINE therapy is based on two well-known factors: (a) That antibodies develop, primarily, in the infected tissues during the course of an infection and when killed organisms are injected into healthy tissues antibodies are also formed by the tissues into which the killed organisms are injected thus exploiting inactive healthy tissues and forcing them to become actively engaged in antibody formation to aid the infected tissues in overcoming the infection, and, (b) That killed organisms when injected into healthy tissues are more dependable and safer agents towards stimulating tissue cells for antibody formation than the live organisms responsible for infective processes.

Sherman's Polyvalent Vaccines are dependable antigens for destroying or digesting the disease germs in

Acne
Arthritis
Asthma
Bronchitis
Erysipelas
Gastritis
Gonorrhea
Gonorrheal arthritis
Hay Fever
Mastoiditis
Nephritis
Neuritis
Otitis media
Psoriasis
Rheumatic fever
Scarlet-fever
Tonsillitis
Tuberculosis
Typhoid fever
Whooping-cough

Immunity to these bacterial diseases is aroused all along the line only by numerous different strains of selected vigorous type-true virulent organisms such as Sherman's Polyvalent Stock Vaccines contain.

Sherman's Vaccines are beyond the experimental stage.

Descriptive data on request to Physicians

Bacteriological Laboratories of
G. H. SHERMAN, M. D.
Detroit, Michigan

FROM THE FIELD

The Ohio Department of Health is conducting a correspondence course in public health for health commissioners. Dr. E. R. Hayhurst, Dr. F. G. Boudreau, and Mr. Paul Mason are on the committee in charge.

Fellowships in medicine to increase the supply of qualified teachers in medicine in clinical and laboratory subjects and in curative and preventive aspects have been announced by the National Research Council. The fellowships, supported by appropriations from the Rockefeller Foundation and the General Education Board, will be open to Americans or Canadians of both sexes holding or qualified to hold M.D. or Ph.D. degrees from approved universities. The appropriations total $100,000 a year for five years. Successful candidates who are to be known as Fellows in Medicine of the National Research Council will be at liberty to choose the institutions or universities in which they will work.

Dr. Robert Olesen, epidemiological aide with the Wisconsin state board of health, made a preliminary survey of North Dakota's state health administration in March for the U. S. Public Health Service.

The Maternity Center Association, 432 Third Avenue, New York City, is conducting a scientific study of the essentials of complete maternity care including nursing service for women before, during, and after confinement in an effort to cut down the death rate of mothers and babies. Besides carrying on a house to house canvass and distributing pamphlets nationwide, the Center will also serve as a training center to prepare nurses to supervise the maternity work of general organization. Miss Mable Choate is president of the association.

In an effort to inform the citizens of New York how to preserve mental health, the Mental Hygiene Committee of the State Charities Aid Association has obtained the voluntary services of thirty-one noted psychiatrists and other authorities on mental hygiene for public addresses. Speakers will be made available upon application to Stanley P. Davies, Secretary of the committee, 105 East Twenty-second Street, New York City.

Not a single death or case of waterborne sickness has been traced to drinking water supplied by steam and electric railroads in Michigan the past two years, according to records kept by the State Department of Health. This degree of safety was reached, officials say, by rigid inspection of sources of water supply thus protecting the health of more than 25,000,000 passengers annually who, it is estimated, use the drinking water supplied by trains and interurbans. During 1921 a total of 304 samples of water from 135 sources used by 25 common carriers was analyzed. All except a few sources were found satisfactory.

The use of goat's milk as a food for infants and for the tuberculous as well as for ordinary usage is set forth by Joseph K. Calvin, S.B., M.D., in *The Archives of Pediatrics.*

S. Dana Hubbard, M.D., Director, Bureau of Public Health Education, is the author of Keep Well Leaflet No. 22 on "Social Hygiene" published by the Bureau of the Department of Health, New York City.

Claiming that physical training courses in the schools are not producing the results hoped for, Henry R. Allen of the Pennsylvania Bureau of Public Health Education, Department of Public Instruction, recommends that more time be given to physical education in the schools; that more adequate training be given not only to regular class teachers but to special instructors; that a standard course of study be prescribed; that greater facilities and equipment be provided; and that less time be devoted to interscholastic athletics and an effort be made to promote intramural sports.

The New York State Department of Health, through the courtesy of the General Electric Company, Albany, is broadcasting five minute health talks twice each week from the radio station at Schenectady.

The Twentieth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service will be held at Washington, D. C., May 17 and 18, 1922.

A joint committee of the American Gynecological Society and the American Child Hygiene Association has outlined their work to include a complete scheme of maternal welfare with such departments as preservation of life and health of the mother; increase in the number of fruitful pregnancies; better facilities for the care of the unmarried mother; establishment of agencies of well qualified men to advise with governmental agencies.

A brief of many novel and unusual features has been filed in the United States Supreme Court by the Government in the child labor law cases. Solicitor General Beck quotes Shakespeare in support of the contention that the people must defend and preserve their own institutions. The brief also presents a historical paper on the French revolution with parallel column notations emphasizing the Government's case.

In attempting to lighten the economic burden of sickness, Dr. F. E. Harrington, Health Commissioner of Minneapolis, has shortened the usual period of quarantine for scarlet fever one week. This has resulted in no increase in the disease and has proved satisfactory from the medical point of view, Dr. Harrington states in the New York *Times.* Economically it has saved weeks of time to members of families. The Minneapolis department of health has also exploded the theory of fumigation after scarlet fever.

All projects in Peru for providing cities or towns with drinking water, sewage and drainage systems, and for garbage disposal must, according to a recent decree, be submitted for approval to the Public Health Bureau.

The First Medical Congress on Accidents to Workmen at Zaragoza, Spain, adopted the following resolutions: That hernia should entitle the victim to two months' wages or an operation at the expense of the employer; that the workman should be given the choice between a needed operation and the loss of his indemnity; that diseases contracted in the hospital as a complication of the accident or contagion entitle to compensation as does also death from the operation. Strict measures against malingering and vocational training for the disabled were also advocated.

VIROL

VIROL is a preparation of red bone marrow, marrow fat, malt extract, eggs, lemon syrup, and phosphates of lime and iron, in the form of an exceedingly fine emulsion, the fat globules being finer than those in human milk.

For Wasting and Delicate Children

THE remarkable results obtained by the use of VIROL in Infant Feeding, for delicate children, and expectant and nursing mothers, is shown by the fact that more than 2,500 Hospitals, Infant Clinics, and Maternity Centers are regularly using this preparation.

The marked improvement in growth and development brought about by the administration of VIROL is due to:–

The presence of the vitamines in their active state.

The well-balanced nature of this food.

The ease with which it is assimilated in the most delicate conditions of the intestinal tract.

This very palatable medicinal is put up in glass jars, 50c, $1.00 and $2.00.

BIO-CHEMICAL INVESTIGATIONS

In view of the extent to which VIROL is used in public health work in Great Britain, the Bio-Chemical Laboratory of the University of Cambridge recently conducted an exhaustive investigation to determine whether the vitamines known to be present in the raw materials from which VIROL was manufactured were present in their active state in the manufactured VIROL as sold to the public. The report, which fully proves the presence of the vitamines in VIROL, will be sent to any medical man on application.

Sole Agents for United States

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

A "fitter family" contest conducted by the Division of Child Hygiene, Kansas Board of Health, is reported in the *Journal* of the Kansas Medical Society. Twenty-five families with an average of four to a family were completely scored. A silver cup was awarded by Governor Allen to the highest scoring family and medals were given by Senator Capper to all individuals scoring 90 per cent or above. Results showed that although the families scored above the average in education and intelligence, were in comfortable circumstances, and were so-called "well" people, they were badly nourished, showed need for better care of the feet, and for the avoidance of contagious diseases. The need for better obstetric and prenatal care was also found.

Eighty-eight per cent of the fresh meat used in the town of Paris, Texas, is slaughtered in the municipal abattoir says the *American City*. A veterinarian, bookkeeper, engineer, and three butchers are employed at the plant which maintains as part of its equipment an incinerator and curing plant. Raising hogs on the offal has been found profitable. The success of the plant is based on twelve years' experience.

The Medical Research Council of Great Britain has appointed a representative committee to advise upon the promotion of research into the biological action of light. This Committee will attempt to obtain better knowledge of the action of sunlight and other forms of light upon the human body in health or disease.

The Cincinnati Board of Health has completed a sanitary inspection of all barber shops in the city and rated them on the basis of 100 per cent. The ratings are published in the *Cincinnati Sanitary Bulletin*. Shop sanitation, sterilization, and individual service are the requirements stressed by the inspectors.

Dr. E. V. Brumbaugh, deputy health commissioner and chief of the bureau of child hygiene of the Milwaukee health department, has been elected full-time health officer of Madison, Wis. He has been with the Milwaukee health department since 1914, and has also been on the instructional staff of the Wisconsin Anti-Tuberculosis Association and the faculty of the Marquette University school of medicine.

Schedule 18, just issued by the United States Bureau of Mines, gives the procedure for establishing a list of permissible carbon monoxid indicators that are light in weight and portable for quickly and easily showing presence of carbon monoxid gas in mine rescue and recovery operations; or around blast furnaces, producer-gas and water-gas plants, and metallurgical and chemical plants. Examinations and tests of carbon monoxid indicators submitted by manufacturers will be made at the Experiment Station of the Bureau of Mines at Pittsburgh, Pa.

The Child Welfare Research Station of the University of Iowa has opened an experimental school for the normal child between the ages of two and four years. Physical measurements of the child are made once a month and investigations are made as to heredity, home conditions, and special characteristics of the families of the children as a background for the psychological findings. A new six room building equipped with child sized furniture has been opened. This is the first time that the reactions of normal children of this age have been studied. Dr. Bird T. Baldwin, director of the Station, is in charge of the study.

Ohio now has three women health commissioners out of a total of 169, according to the *Bulletin of the Ohio Public Health Association*. They are Dr. Beatrice T. Hagen, recently appointed commissioner of Zanesville; Dr. Inez Hyatt who on March 1 became health commissioner of Conneaut, succeeding Dr. W. H. Leet, and Miss Eleanor Loomis, Painesville, who has for some time been serving as both public health nurse and health commissioner of Painesville. Since the enfranchisement of women many women have been appointed on local boards of health and it is expected that more will be appointed as health commissioners.

American exhibits are desired in the British Food Exhibition to the held at London, September 6-26, 1922, at the Olympia, the largest permanent exposition building in England. Blank forms for application for space and information concerning the exhibition can be had from A. E. McKinnon, General Exposition Company, 405 Lexington Avenue, New York City, who is the American representative. Display of American fruits is especially desired.

Protection of water supplies from pollution and the public from preventable diseases, rather than saving of fish, is the purpose of the Michigan department of health in waging its campaign against stream and lake pollution and indiscriminate disposal of industrial wastes and domestic sewage. Private corporations are required by state law to file with the State Department of Health descriptions of the entire sewerage systems owned. Industries whose unsatisfactory disposal of wastes creates nuisances, kills fish, and pollutes water supplies are among the worst offenders. The Departments of Conservation and Agriculture will assist the State Department of Health in enforcing the stream pollution law.

All six of the laboratory workers of the U. S. Public Health Service who have been studying tularemia, a disabling sickness of man particularly prevalent in Utah, have contracted the disease, two of them being infected in the laboratory in Utah and the other four in the Hygienic Laboratory in Washington, according to an announcement by the Service. Such a record of morbidity among investigators of disease is unique in the history of experimental medicine. The disease is transmitted by the germ *bacterium tularense* which is transmitted by the bite of the blood sucking fly, the stable fly, the bedbug, and the squirrel flea.

In eleven counties in Ohio, the county and city governments have effected a combination of county and city health districts. Places where one commissioner serves both county and city are: Athens county and Athens City; Clark and Springfield; Erie and Sandusky; Greene and Xenia; Ross and Chillicothe; Shelby and Sidney; Summitt, Akron, Kenmore and Cuyahoga Falls; Wood and Bowling Green; Cuyahoga and Cleveland Heights; Clinton and Wilmington; Wooster and Wayne. Steps have already been taken to combine the city of Hamilton and Butler county exclusive of Middletown.

Benjamin S. Weiss of the University of Southern California has recently completed a study of 225 of the 1,500 children said to be annually employed in the production of motion pictures at Los Angeles. Teachers say that children so employed become excitable, precocious, unreasonably mature, and lacking in power of concentration.

Stanolind Petrolatum

A Highly Refined Product of Absolute Purity—Superior In Color To Any Other Petrolatum

"Superla White" is pure, pearly white, all pigmentation being removed by thorough and repeated filtering. Does not contain nor require white wax to maintain its color.

"Ivory white," not so white as Superla, but compares favorably with grades usually sold as white petrolatum.

"Onyx," well suited as a base for white ointments, where absolute purity of color is not necessary. Compares favorably with commercial cream petrolatum.

"Topaz" (a clear topaz bronze) has no counterpart—lighter than amber —darker than cream.

"Amber" compares in color with the commercial grades sold as extra amber—somewhat lighter than the ordinary petrolatums put up under this grade name.

Standard Oil Company of Indiana guarantees the purity of Stanolind Petrolatum in all grades

Standard Oil Company
(*Indiana*)
Manufacturers of Medicinal Products from Petroleum
910 S. Michigan Ave. Chicago, U. S. A.

2391

Chicago has organized an Association for the Relief and Prevention of Heart Disease with Dr. James B. Herrick, president; Dr. Sidney Straus, secretary; Dr. Robert B. Preble, vice-president and Frank O. Hibbard, treasurer. The object of the association will be to coordinate the already established heart agencies, to direct those in need to the nearest clinic, to find agencies to provide for convalescent care, to cooperate with the Service League for the Handicapped in finding occupations suitable to their condition, and to carry on an educational campaign.

The American Society for the Control of Cancer has elected the following officers for the year 1922: Dr. Charles A. Powers, president; Dr. George E. Armstrong, Dr. Clement Cleveland, Dr. Livingston Farrand, Dr. Rudolph Matas, vice-presidents; Thomas M. Debevoise, secretary; Dr. Calvert Brewster, treasurer, U. S. Mortgage & Trust Co.; Sir Arthur Newsholme, honorary vice-president. Dr. Charles N. Dowd, Dr. John C. A. Gerster, Mr. Calvert Brewer and Mrs. Samuel Adams Clark, all of New York City, were elected to the Board of Directors.

The University of Cincinnati *Medical Bulletin* devotes its February issue to the Cincinnati Health Exposition held recently. The number contains the following articles: "The Cincinnati Health Exposition," by Bleecker Marquette, Cincinnati, Ohio; "National Ideals of Child Welfare," by Helen MacMurchie, M.D., Ottawa, Canada; "Fighting Typhus Fever in Poland," by Lieut. Col. H. L. Gilchrist, U. S. A.; "What We Should Eat," by Harvey Wiley, M.D., Washington, D. C.; "Checking the Spread of Tuberculosis," by David Lyman, M.D., Wallingford, Conn.; "How Health Officials Guard the Public Against Disease and Death," by Royal S. Copeland, M. D., New York City; "Health and Dental Infections," by Weston A. Price, D.D.S., Cleveland, Ohio; "Rural Health Problems," by L. L. Lumsden, Surgeon, U. S. Public Health Service.

The Rockefeller Foundation has offered the sum of two million dollars towards the cost of building and equipping an Institute of Hygiene in London, the offer being made with the understanding that the British Government would provide for its staffing and maintenance.

Under the joint sponsorship of the Grinding Wheel Manufacturers Association of the United States and Canada and the International Association of Industrial Accident Boards and Commissions, there has been organized a sectional committee for formulating a safety code for abrasive wheels. The code prepared by this committee and approved by the sponsors has been approved as Tentative American Standard by the American Engineering Standards Committee. Copies of the code may be secured from the American Engineering Standards Committee, 29 West 39th Street, New York City.

The Annual Report of the State Division of Child Hygiene announces that the outstanding activity of the division for the year was the rural child health consultations for infants and children of preschool age conducted by a traveling field unit. The unit, which was composed of a physician, a nurse, and an advance agent, traveled by the "Healthmobile" during the part of the year when this was possible, visiting 108 rural towns, and examining over 5,000 children During the winter, when roads were bad, 50 consultations were held in towns of 2,000 to 5,000 population easily accessible by railroad. No treatment was given but children with physical defects were referred to the family doctors. Follow-up work shows that at least 50 per cent of the cases so referred have received the needed attention.

The Information Bureau of the Division of Industrial Hygiene, Ontario Provincial Board of Health, offers to health officers, social welfare associations, industrial physicians, sanitary engineers, and employers means of keeping in touch with latest developments in industrial hygiene. Subjects covered are industrial medical service, industrial sanitation, occupational diseases, fatigue, and health legislation.

That there is a direct relation between infant mortality and housing is seen in a report by Dr. J. Parlane Kinloch in the *Lancet*. The mortality is not so great in relation to overcrowding of districts but to overcrowding of individual houses. The death in one-roomed houses in Aberdeen in 1920 were 25 per 1,000, in three-roomed houses 11 per 1,000; while infant mortality is twice as high in houses of three rooms and under as in houses of five rooms and upwards.

The Royal Sanitary Institute will hold a congress at Bournemouth, July 24 to 29, 1922, under the presidency of Major-General J. E. B. Seely, M.P. Conferences will be held on subjects relating to hygiene and sanitary science, and a health exhibit will be arranged in connection with the meeting.

Over thirty Maine organizations were present at a luncheon-conference held recently at Augusta to discuss the new health plan for Maine and the work of the Maine Public Health Association. Dr. Donald B. Armstrong, Executive Officer of the National Health Council, was the guest of honor.

The Cuban Society of Gastro-enterology was founded February 30 in Habana and officers elected March 13 as follows: President, Dr. F. Grande Rossi; vice-president, Dr. F. Torralbas; secretary, Dr. F. Solano Ramos; vice-secretary, Dr. Pedro Barillas.

The *Albany Medical Annals* recently published two articles relating to loss of vision, the first "Rating Losses of Industrial Vision under the New York State Compensation Law," by William Mehl, M.D., of Buffalo, and the second "Measuring the Loss of Industrial Vision," by A. N. Snell, M.D., of Rochester.

At the fourth annual convention of the Saskatchewan Society of Sanitary and Heating Engineers, at Regina, Saskatchewan, R. H. Murray, provincial director of sanitation, read a paper on "Sewage Disposal and Treatment."

The Third Pan-American Congress of Child Welfare will take place August 27 to September 5, 1922 at Rio de Janiero in connection with the official program commemorating the centenary of Brazilian independence. The First Brazilian Child Welfare Convention will be held conjointly with those of the Pan-American Congress.

Health directors and members of eleven counties in Pennsylvania met at Pittsburgh recently under the presidency of Dr. Edward Martin, State Health Commissioner, and formed District Board of Health Association No. 4 composed of associated health boards. Drs. Israel B. Reed, Pittsburgh, and Albert J. Bearer, New Kensington, were elected vice presidents.

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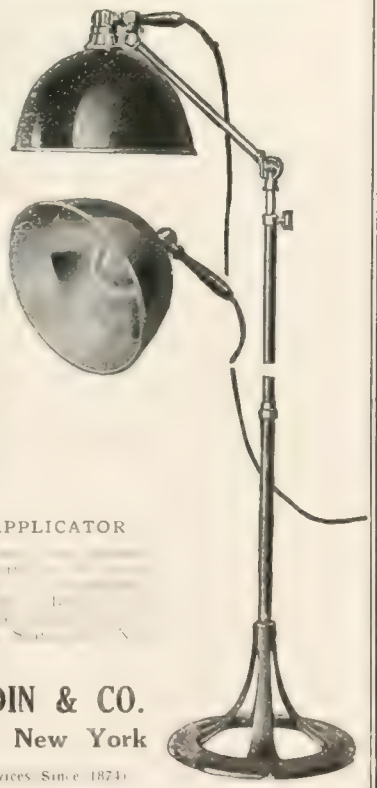

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The *Lancet* publishes a common form of report for the medical examination of employees in a recent issue. Dr. D. A. Coles, Industrial Welfare Society, 51 Palace St., Westminster, S. W. I., drew up the report.

The Secretary of Commerce has recently approved an amendment to the general rules and regulations prescribed by the Board of Supervising Inspectors which requires that no candidate for original license as master, mate, pilot, or engineer shall be examined unless he has completed a course of instruction in "first aid" approved by the United States Public Health Service and has passed an oral examination based on a Manual on Ship Sanitation and First Aid recently prepared by the Public Health Service in cooperation with the Seamen's Church Institute of New York City.

The Massachusetts Institute of Technology offers a course in public health from July 10 to August 11 designed especially for teachers, school nurses, teachers of physical education, and those desiring to become laboratory technicians in the public health field. Courses offered are Methods of Teaching Hygiene and Public Health in the Public Schools by Prof. C. E. Turner; Personal Hygiene and Nutrition by Prof. John W. M. Bunker; Sanitary Science and Public Health by Prof. S. C. Prescott and Prof. C. E. Turner; Elementary Bacteriology by Prof. John W. M. Bunker and Dr. M. P. Horwood; Bacteriology (professional course) by Dr. Horwood; and Public Health Laboratory Methods by Dr. Francis H. Slack.

The Indiana Tuberculosis Association has issued a bulletin of advice "Get Well in Indiana," urging sufferers from tuberculosis not to go west where facilities for their care are inadequate, but to remain in their own state. Good food, rest, fresh air, and medical supervision are the essentials for tuberculosis cure and not climate, the report emphasizes.

Mayor James Couzens of Detroit has contributed personally to the new Children's Hospital one million dollars in securities. The Michigan State Hospital, to which the Mayor gave one million dollars in December, 1919, and the Children's Hospital have been consolidated.

Providence, (R. I.), school children are depositors in the Bank of Health which was founded by Dr. Charles F. Chapin, Superintendent Health Department; Dr. Ellen A. Stone, Superintendent Child Hygiene; Dr. Elliott Washburn, Providence Tuberculosis League; Mr. I. O. Winslow, Superintendent of Schools; Miss Ella L. Surrney, Assistant Superintendent of Schools, Primary Grades; and Miss Estelle C. Batchelder, fifth grade teacher, Broad Street School. The child marks each day on "deposit slips" the nine health rules he has followed and these in turn are recorded by the teacher on a blank, one for each child, and mailed at the end of the term to the Director of Physical Education, Geo. W. Watson.

A new department to be known as the Division on the Prevention of Delinquency has been created by the National Committee for Mental Hygiene, through its recent special gift from the Commonwealth Fund. One of the activities of the division will be to furnish, free or on a cost-sharing basis, psychiatric service to a limited number of juvenile courts throughout the country who may request it. A demonstration clinic staffed by a psychiatrist, a psychologist, and a psychiatric social worker will be assigned to each court to which it is possible to render such aid. The selection of courts will depend largely upon the interest shown and the prospects for the establishment of a permanent clinic at the expense of the community.

Another aspect of the work of this division will be to undertake inquiries covering a period of several years that will deal with the problem of delinquency in special population groups. The first study of this sort will be made in Monmouth, New Jersey, where an extraordinary opportunity presents itself to study the school children of a county. The work will be conducted in cooperation with a general program for child welfare, health, and education, and thus the practical work of treatment and prevention can be combined with medical and social research. Dr. V. V. Anderson, the director of the new division, will be in immediate charge of work and will be assisted by an advisory committee.

Wisconsin's tuberculosis death rate for 1921 was 73.8, the lowest ever attained in the state. For 1920 the rate was 84.6. The total tuberculosis deaths were 1,965, as compared with 2,217 for 1920.

France's new Minister of Hygiene, M. Paul Strauss, is by profession a journalist, and is well known in the public health press. He made his debut in politics in 1900 as a member of the Municipal Council of Paris. Later he was elected Senator from the Department of the Seine. He is President of the Association of Republican Journalists.

Massachusetts has a new organization, consisting of physicians called the Committee on Rural Health and Medical Service, which has inaugurated a plan to provide citizens of the State with medical care and attention similar to that which the hospitals, dispensaries, and specialists afford people in the cities. Hospitals will be established, subscribed to, and directed by the people and clinics will be conducted by specialists.

The British Chemical Society has published a report, "Notes on the Furnishing and Equipment of Chemical Laboratories," which relates the methods in use for forming and treating bench-tops, reagent shelves, fume cupboards, sinks, and waste channels, with notes on ventilation, supply services, and floor and wall surfaces added.

An epidemic of trachoma which has attacked 90 per cent of the population of Armenia is reported by Dr. R. T. Uhls of Kansas City who is head of the medical department of the Near East Relief. Of the 30,000 refugees examined, 27,000 were in the primary stages of the disease. Only an extensive medical campaign can save the country from becoming a nation of blind.

A neuropsychiatric clinic has been established by the department of public health at the Philadelphia General Hospital. The clinic will treat and observe patients who are not classed as insane and who have been discharged from the psychopathic wards of the hospital. It will also examine patients for early manifestations of mental diseases.

Scientific proof that typhoid patients are not carriers of the disease is provided by a new ruling of the Michigan Department of Health which requires that persons contracting typhoid shall be isolated "until specimens of feces taken at intervals of not less than one week after clinical recovery from the fever have been found free from the typhoid bacillus."

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Industrial Rehabilitation in Pennsylvania

The recent "Report of Activities of the Bureau of Rehabilitation to January 1, 1921" of the Pennsylvania Department of Labor and Industry adds much light to our already convincing data on the rehabilitation of industrially disabled by the thoroughgoing report of activities of the Bureau of Rehabilitation in the Pennsylvania Department of Labor and Industry. "Rehabilitation," says the report, "in its final application, is an industrial conservation activity, human engineering, the adapting of disabled persons to proper tasks, tasks they can perform efficiently unhampered by their disabilities."

The Bureau was established in July, 1919, by special act of the Legislature and provided with an appropriation of $100,000 to be devoted to administrative costs of the Bureau, to the purchase of artificial appliances, and maintenance cost not exceeding $15.00 per week for the physically handicapped during a period of training. Such training courses include telegraphy, motor mechanics, traffic management, salesmanship, commercial courses, piano tuning, carpet weaving, watch making and other skilled occupations.

Of the 730 persons registered with the Bureau up to January 1, 1921, definite assistance had been extended to 310 disabled persons, 47 of whom were receiving regular weekly maintenance. Artificial appliances had been furnished to 166 persons. The records indicate that the majority of the registrants were over 31 years of age and native Pennsylvanians. The age factor is important in arriving at a decision regarding training. While the work has thus far been carried on as a state project, an agreement is under consideration with the Federal Board for Vocational Education and Federal funds will be accepted.

Dietetics in Labrador

A study of the diet in Labrador is published in a recent issue of the *Journal of Home Economics*. The character of the food supply offers an excellent opportunity for observing the effects of simplified cereal and meat diet on a large group of people for a considerable period of time under fairly constant conditions. The observations covered the years 1919 and 1920 in order to determine the exact nature of the diet in the region and the incidence of diseases that were supposed to be of nutritional origin.

Bread made of white flour is the chief article of diet. Whole wheat flour would be perhaps better in the restricted diet but the people do not like it and will only use it when ill. Salt meat, either pork or beef, is eaten in quantities. Game is the only fresh meat. Formerly it was plentiful but recently not so much so. Molasses commonly takes the place of sugar. The more prosperous families have occasionally potatoes and turnips and sometimes onions. Rice is not used generally. Dried peas are almost universal and are eaten once or twice a week. Some of the families have a small quantity of dried beans. Dock can be used as beans but are not usually eaten. Small quantities of canned fruit are occasionally provided but are not an essential part of the diet. Occasionally a family has figs or prunes. Cow's butter is exceptional and condensed and evaporated milk are both used, the sweetened condensed milk being the most popular. Tea is the universal beverage. Two to three cups are taken at every meal by young and old.

It is pointed out that the diet is chiefly that of cereals, with an excess of carbohydrate and a deficiency in vitamines and protein. The growth of children is retarded more markedly in the poorer families. Deficiency diseases are less common than would be expected.

The Economic Aspect of the Sandwich

Physicians generally have not been primarily interested in the sandwich as an important part of the diet but its universal use has led to an effort to estimate the caloric content of the ubiquitous sandwich. The nature of the health problem involved in the use of the sandwich depends upon the place it occupies in the dietary. Eaten with a cup of tea as a noonday meal, a sandwich of high energy content constitutes no health problem. If taken between meals however in addition to an adequate ration, it may become an individual health problem. Its economic aspect becomes important when the sandwich of inadequate calories is depended upon for food.

Generally speaking, aside from sliced chicken sandwiches, the higher the price of the sandwich, the larger the number of calories. A frankfurt sandwich at five cents is an economical source of energy, but a sliced bacon sandwich at twenty-five cents must be considered as a concession to the demands of the palate and not as an economic source of energy.

A report of the ready-prepared sandwich has recently been made by Cornelia Golay Benedict and F. G. Benedict, of Boston, and their report from the nutrition laboratory of the Carnegie Institute in Washington is reported in a recent issue of the *Boston Medical and Surgical Journal*. The main object of their inquiry was to determine the total calories in the various types of sandwiches. Roughly speaking, they found the number of calories not far proportional to the total weight of the sandwich. The estimation of the energy content of the salad sandwiches is a more complex matter.

The chief food value is in the bread. Disregarding the cost of labor and the convenient but often elusive "overhead" charge the purchaser paid at the rate of about $7.70 per pound for the chicken meat in the sandwiches tested in this study. In general, it is concluded that the sandwich is not an economical source of energy.

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Mouth Hygiene for Dental Hygienists

The second edition of "Mouth Hygiene" compiled and edited by Alfred C. Fones, D.D.S., is an excellent outline of the subjects needed by a dental hygienist. Chapters are contributed on the various subjects of anatomy of the head, by Robert H. W. Strang, M.D., D.D.S., histology of the teeth and associated structures, by Dr. Strang; the teeth as a masticating machine, by Charles R. Turner, M.D., D.D.S.; malocclusion of the teeth, by Rodrigues Ottolengui, M.D.S., D.D.S., LL.D.; inflammation, by Leroy M. S. Miner, M.D., D.M.D.; deposits and accretions upon the teeth, by Edward C. Kirk, D.D.S., Sc.D., LL.D.; pyorrhea alveolaris, by Arthur H. Merritt, D. D.S.; dental caries, by Dr. Kirk; odontalgia and neuralgia, by Arthur Hopewell-Smith, Sc.D., L.R.C.P., M.R. C.S., L.D.S.; relation of oral infections to general health, by Dr. Kurt H. Thoma, D.M.D.; dental prophylaxis, by Dr. Fones.

Under dental prophylaxis, Dr. Fones treats in detail the subjects of instrumentation and polishing. The most efficient kind of toothbrush and the best means of brushing the teeth are described.

The appendix describes briefly the broad field of the dental hygienist in private practice, hospitals and sanatoriums, industrial and municipal clinics, and in schools. Dr. Fones' report of five years of mouth hygiene in the public schools of Bridgeport, Conn., is also published as part of the appendix.

The book is clearly and simply written and is well illustrated with plates.

Lea & Febiger, Philadelphia, 1921

The Story of Mankind

What H. G. Wells has done for adults in his "Outline of History," Hendrik Van Loon has accomplished for children in "The Story of Mankind." Most histories for children presuppose the establishment of the supremacy of man. Formal Ancient Histories may touch briefly on the "Stone Age," "Iron Age," and the "Age of Bronze" but Van Loon begins at the beginning. In a clear way easily understood by the immature mind, the author sketches the development of life from the first moving cell in dark waters to invertebrates, amphibions, reptiles, birds, mammals, till man, representing the highest type of animal life, is reached.

One is impressed with the fact that the author is attempting to give to the child a synthesized knowledge of world civilization; the contribution of each age or people is stressed rather than events or dates. The book is not a thesis, as so many child's histories are, to uphold the superiority of Christianity; all religions and philosophies are accorded unbiased mention. The child reading "The Story of Mankind" will lay a basis for broadminded tolerance; will see history as a record of human achievement; will understand the influence of one country's civilization on the other, and will attain at an early age some concept of the international viewpoint.

The book is delightfully illustrated with naive outline drawings by the author.

Boni and Liveright, New York, 1921.

Books Received

AMERICAN APPRENTICESHIP AND INDUSTRIAL EDUCATION. By Paul H. Douglas, Ph.D., Studies in History, Economics and Public Law, edited by the faculty of political science of Columbia University. Longmans, Green & Co., New York, 1921.

ABDOMINAL PAIN. By Prof. Dr. Norbert Ortner, chief of the second medical clinic at the University of Vienna. pp. 362; cloth, 8vo. Rebman Company, New York, 1922.

THE GLANDS REGULATING PERSONALITY. By Louis Berman, M.D., Associate in Biological Chemistry, Columbia University, cloth, 8vo., pp. 291. The Macmillan Company, New York, 1922.

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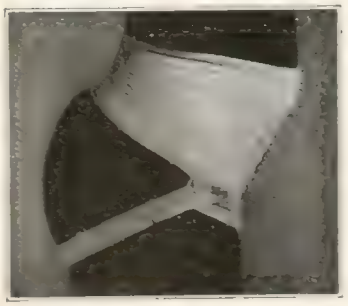

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Purification of Drinking Water

There is a constantly growing interest in the question of purification of water supplies used for drinking and also the purification of swimming pools, which is probably an outgrowth of Army necessities during the recent war. The *Bulletin de l'Academie de Medicine*, says:

Dopter and Rieux refer to the satisfactory results obtained in the French Army in the chemical sterilization of drinking water. The potassium permanganate and iodin tablet methods were soon abandoned in favor of the simpler and much cheaper sodium hypochlorite or "javellization" procedure. The chief difficulty in applying the latter was to secure an automatic apparatus which would bring the hypochlorite in contact with the water as fast as the latter was used and cease adding it when the outlet was closed. By 1917 several successful forms of apparatus for this purpose had been devised, and these the author describes. Bacteriological studies showed that colon bacilli disappeared completely from water thus treated, and that the mechanical mixing of the water reduced by one-half the amount of hypochlorite required. The water had no residual taste, and the users remained entirely unaware that it had been chemically treated. The only district in which complete success was not obtained was in the Argonne, the water there being rich in clay and fixing a considerable proportion of the chlorine. The method as a whole proved a potent factor, in conjunction with antityphoid vaccination, in eliminating water-borne diseases from the war zone. It seems to have solved the problem of water purification for armies engaged in stationary warfare, though apparently impracticable for troops in active motion. Apart from war conditions, the method would seem to be of great value not only in colonial hygiene but in affording a reliable means of securing good water in towns and villages where the costly procedure of purification applicable to large cities are impracticable.

Encephalitis a World Wide Disease

Statements of delegates before the Session Extraordinaire d'Avril 1920 du Comité Permanent de l'Office international d Hygiène Publique, Paris, 1920, formed the basis of a statement in a recent issue of *Public Health Reports* in regard to the world wide prevalence of encephalitis lethargica. The disease was announced in Austria by von Economo at the beginning of 1917, it reached France and England in the spring of 1918, and Italy the following winter. It appeared in Portugal in February 1919, in India in November, and in Spain in the early part of 1920. It appeared in the United States toward the end of 1918, on the Atlantic Coast, and on the Pacific Coast in October, 1919. It also reached Uruguay, South America, and was present in Australia in March, 1919. It is a notifiable disease in England and Wales, from which countries it is reported as seasonal, being more prevalent in winter and mostly affecting individuals under 25 years of age.

It is not placed in the category of notifiable diseases in France but in that country systematic inquiry has been directed toward (1) communicability of the disease; (2) its relation to influenza; (3) its relation to poliomyelitis. It has not been reported in epidemic form in France, nor has communication by direct contact been established there. Children and adults are attacked in the ratio of one to two, deaths occurring in the same ratio.

The disease has been the subject of laboratory research in Italy where its occurrence has been sporadic, and comparative immunity has been noted in maritime climates. Notification is obligatory in Christiania and Poland.

The disease is not reportable in most of the countries and in but few cities and states of the United States, and the figures here given are, in most instances at least, fragmentary and a bare minimum. Reporting is obligatory in England and Wales, Christiana, Norway, Poland, and Zurich, Switzerland.

Education Through Nutrition Classes

Educational work in nutrition classes is being developed in Schuylkill County, Pennsylvania, under the direction of the Home Economist, Elinor R. Mills, of the Anti-Tuberculosis Society. School children are weighed and measured and given tags showing their underweight. On the reverse side of these tags are simple suggestions for bringing their weight up to normal. This weighing is followed by the establishment of special classes for the children who are more than 10 to 15 per cent underweight. Twelve classes have already been formed in various schools of the County, most of them being held in the school buildings during school hours. The 285 boys and girls in these classes are being taught practical things to do to gain in weight. Special emphasis is made on healthation of oatmeal, baked potato, spinach, milk toast and other good foods for children is demonstrated each week. The children taste the foods prepared, and are urged to use them at home. A bulletin containing the information given in the class talk and demonstration is sent home with the child.

The gain which each child makes is pictured on an individual chart. Colored circles are also marked on these charts if they take a daily nap, go to bed early, drink no coffee, eat oatmeal, and drink three glasses of milk each day during the previous week. If a child fails to gain normally a doctor's examination is secured. The nutrition worker does some home visiting and is also securing the cooperation of community nurses and interested mothers in helping carry the work into the homes. The gains in weight and the children's improved physical conditions are already proving the practical value of this type of county class work.

The Bureau of Child Welfare of the Wisconsin State Board of Health has placed a child welfare motor truck in the field for service in distinctly rural counties.

Detroit's Nutrition Class

Courtesy of City Health.

Children suffering from malnutrition in the Detroit public schools are segregated in a special class for medical supervision where an effort is made to bring them up to normal weight and health.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST [illegible]

OF THE NATION'S HEALTH [illegible] Chicago, Ill., for April, [illegible]

State of Illinois, }
County of Cook } ss

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared Dr. O. F. Ball, who, having been duly sworn according to law, deposes and says that he is the president of The Modern Hospital Publishing Co., Inc., and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443 Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: The Modern Hospital Publishing Co., Inc., Chicago, Illinois.

Editor: [illegible]

Managing Editor: [illegible]

Business Manager: James G. Barrett

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

The Modern Hospital Publishing Co., Inc., Chicago, Ill.; Dr. O. F. Ball, Chicago, Ill.; [illegible]

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees, or other security holders.

O. F. BALL, President

Sworn to and subscribed before me this twentieth day of March, 19[illegible]

[Seal] J. P. McDERMOTT, Notary Public

My commission expires August [illegible], 1925

Rebuilding The Man

You are frequently consulted by men who have shot their physical and mental bolt.

You prescribe and lay out a well-arranged course of treatment—in fact do everything that scientific skill can do. In most cases the difficulty is that the patient, though his intentions are excellent, is unable to maintain the regimen laid out for him.

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William J. Brown, *Physical Director*

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Conference of State and Territorial Health Authorities

The following program is tentatively announced for the Twentieth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service to be held at Washington, D. C., May 17 and 18, 1922.

Opening remarks by the Surgeon General.
Roll call of delegates.
Appointment of committees.

REPORT OF STANDING COMMITTEE

Morbidity Returns Dr Eugene R. Kelley.
Sanitation of Public Conveyances—Dr. Oscar Dowling.
Interstate Quarantine Regulations Dr. John S. Fulton.
Rural Health Work Dr. W. S. Rankin.
Trachoma Dr. John McMullen.

SPECIAL REPORT

Progress report of Board appointed by the Surgeon General to study the problem of sanitary disposal of human excreta in unsewered communities Professor C. W. Stiles.

NEW BUSINESS

Anthrax.
Discussion of Amendments to Interstate Quarantine Regulations.
Problems of Interstate Health Work
Control of water supplies used in interstate traffic: (1) Discussion of chlorin as a means of insuring the safety of drinking water. (2) The value of colon bacillus as an index of potability of water. (3) Cooperative certification procedure.
Coordination of effort and promotion of efficiency in the field of sanitary engineering.
Transportation of lepers. Uniform parole system.
Trachoma.
Cooperative malaria control work: (1) Paris green as a larvicide. (2) Methods of evaluation of results of local measures for the control of malaria.
Registration area for morbidity.
The relation of the public and the medical profession in the conservation of health.
Venereal diseases: (1) Proposed program for the ensuing fiscal year. (2) State work in venereal disease control.
Cooperative rural health work.
Child hygiene: (1) Resume of activities of the Public Health Service. (2) Provisions of the Act of November 23, 1921, entitled "Promotion of the Welfare and Hygiene of Maternity and Infancy, and for other purposes," with special reference to detailed plans for carrying out the provisions of the act as specified in Section 8. (3) Effect of distribution by official agencies of biologic products on child morbidity and mortality.
Toxin-antitoxin and the Schick reaction: (1) Statewide programs for the application of the Schick test and toxin-antitoxin immunization. (2) Standardizing technique.
Sanitary supervision of milk supplies.
Nutritional diseases.
Vaccination against smallpox.
Industrial hygiene.
Report of the conference on the education of sanitarians.
Immigration problems.
Rabies eradication by vaccination of dogs.

Pennsylvania Conference of Industrial Physicians

The following program is announced for the Fifteenth Conference of the Industrial Physicians and Surgeons of Pennsylvania to be held at Harrisburg May 25, 1922, under the chairmanship of Dr. Francis D. Patterson, chief, Division of Industrial Hygiene and Engineering, Pennsylvania Department of Labor and Industry.

MORNING SESSION 9:30 A. M.

Factors in Determining the Length of the Work Day, by Reynold A. Spaeth, Ph. D., associate in physiology, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.
The Problem of the Mental Misfit in Industry, by George K. Pratt, M.D., Medical Director, Massachusetts Society for Mental Hygiene, Boston, Mass.
Physiological Effects of High Temperatures and Humidities, by W. J. McConnell, M.D., past assistant surgeon, United States Public Health Service, detailed to United States Bureau of Mines, Pittsburgh, Pa.

AFTERNOON SESSION 2 P. M.

Adequate Artificial Illumination as a Means of Improved Production and Protection to the Industrial Worker (illustrated), by G. Bertram Regar, illuminating engineer, Philadelphia Electric Company, Philadelphia, Pa.
How Best to Meet the Problem of Septic Infection in Industry, by A. W. Colcord, M.D., plant surgeon, Carnegie Steel Company, Clairton, Pa.
General discussion.

EVENING SESSION 8 P. M.

Joint Session with the Association of Governmental Labor Officials of the United States and Canada.
The Industrial Clinic for the Rehabilitation of the Injured of Industry (illustrated by lantern slides and motion pictures), by General Lewis T. Bryant, commissioner of labor of New Jersey, Trenton, N. J.
Medicine and Industry, by John A. Lapp, Chicago, Ill.

The activities of the Hospital Social Service Department in the University Hospital, Ann Arbor, Mich., receive new impetus and an earnest of future accomlipshment in the appointment of Miss Dorothy Ketcham as director. Miss Kitcham was for some years identified with social service work in the University of Indiana. She served with the Red Cross during the war, since which time she has acted in the capacity of research assistant to John A. Lapp. She carries to her new post an unusual equipment for broad and effective work.

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Nebraska Hot Lunch Clubs

By MARY-ELLEN BROWN, Assistant Club Leader, Lincoln, Nebr.

A RURAL teacher, who has thirty pupils in her school, said the other day, "I have served hot lunches in my school for seven years. This winter we tried the Standard Club plan for the first time and have found it to be a splendid method. In less than a week I realized that the boys and girls were taking much of the responsibility off my hands. I never want to go back to an unorganized plan of handling the work again."

The Nebraska plan involves organization of the school as a club with the boys and girls over ten years of age as active members. The active members are divided into groups. In order to divide the work, two work together, depending upon the size of the school. Each group serves a week as housekeepers, a week as cooks, and then as bookkeepers. Some time later they serve again for three weeks. By dividing the work in this way, only a comparatively short time is taken by the pupil from his work or play.

To increase the interest in doing the work quickly, each member keeps track of the number of minutes that it takes to complete the task. Each is asked to "beat his own record." For example, if it took fifteen minutes to wash the dishes the first day, the next day it should take only fourteen minutes. Such a check on time adds to the interest and the spirit in which the work is done.

Only one hot dish a day is prepared and the pupils bring the food from home. They take turns in doing this and each is given credit for the food which is furnished. A system of single entry bookkeeping is kept by the bookkeepers. As one boy said "bookkeeping makes the work so much more interesting and worth while:

Miss Maude A. Bean, County Club Agent in Dawson County, in her monthly report, says "The teachers say it is wonderful the subjects one can correlate with the hot lunch club plan. We find that some teachers are making a great effort to develop sanitation, health and nutrition in hot lunch lessons. Another says her pupils are more courteous since having the club. Wherever a local leader is making special effort to carry out the club plan she is obtaining results."

James Ross has found that a man can handle hot lunches successfully through the club plan. In a letter Lela Robinson, a member of his club, wrote to the other boys and girls of her county, she says: "At first we get a Charter, signed by the Secretary of Agriculture Henry C. Wallace, and the Governor, Samuel R. McKelvie.

"There are three parts to the club work, cooking, housekeeping, and bookkeeping. Now I will tell you about the cooking. The lessons are very simple, so that even a small child could follow them if they could read. Housekeeping is simple, too. They are supposed to see that supplies are brought, serve, and wash the dishes. Each one in the club brings supplies when he is called upon. The bookkeeping is a little hard the first week but after that it is easy. We have cooked all kinds of lunches, some of them were cocoa, baked apples, potato soups, and creamed soups. We had a judgment contest at one of our meetings and made butterscotch candy. We are going to serve our mothers and fathers a lunch Friday. We have had good lunches so far."

Generalized Plan of Public Health Nursing

The danger of over-specialization of the public health nurse and the consequent loss of centralized supervision is discussed by Allen W. Freeman, M.D., of Baltimore in an article entitled "Organization of Public Health Nursing in the State Board of Health," in *The Public Health Nurse.*

A public health nurse is often called upon to perform duties in connection with several diseases in one family or one district. Over-specialization in tuberculosis, communicable diseases, or child hygiene may work to the exclusion of interest in other lines, and thus involve a loss in time and efficiency. One public health nurse operating in a district can secure the confidence of the people more readily than several specialized nurses.

The generalized plan of public health nursing has been adopted to offset the weakness and decentralization of the over-specialized type. In this plan the nurses work by districts not by special problems or diseases, and each is assigned to a district for which she is responsible. To administrate this work properly there must be a division of public health nursing at the head of which is an experienced public health nurse to whom the other nurses are responsible.

Care should be taken not to confuse the work of the division of public health nursing with the division of child hygiene.

The division of public health nursing in a state department of health should act as consultant and adviser to all local voluntary and official agencies carrying on local nursing service. This should include assistance in securing suitable nurses, in establishing standards of work, and in formulating general policies and plans.

SATISFIED AND SATISFYING

THE varying nature of industrial work demands certain qualities on the part of the industrial surgeon. Some industrial surgeons will meet the requirements in one industry and would perhaps be at "sea" in another plant. If an industrial surgeon is not satisfied with his work, or if he does not produce the results that should follow, the relation between the plant and the surgeon are certain to be unsatisfactory.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV | Chicago, June 15, 1922 | Number 6

Measures of Health Protection on Public Carriers

Sanitary Regulations of Canadian Pacific Are Safeguard to Traveler

BY EMMA GATES ARMSTRONG, NEW YORK CITY

SEMI-ANNUAL house cleanings have long been the bugbear of housewives, but the up-to-date hotels of today are undergoing a perpetual house-cleaning, while passenger boats and cars are thoroughly renovated after each trip. The efforts made by public utilities companies to protect the health of the patrons they house or transport are unceasing. This may be illustrated by studying the method of the Canadian Pacific Railway Company. Its hotels, famous for excellence of cuisine and service, are strung along its transcontinental line from the Atlantic to the Pacific Coast and its great fleet sails the seven seas, the Great Lakes, and southern British Columbian lakes.

Passenger car cleaning is under the supervision of the mechanical engineering department, and all rules and regulations for this, as well as other departments, originate at headquarters at Windsor Station in Montreal. In order that there may be no misconception or excuse for infringements of rules, bulletins setting forth in clear, concise form the methods of cleaning and operating cars are put in the hands of the employees who are responsible for the cleansing of cars in the yards and of their care during runs.

Not only is rigid cleanliness demanded and attempted, but preventive sanitation is applied wherever feasible. The community towel and cup have disappeared and in their place are the individual linen and absorbent paper towels and the individual paper cups. How much this means, especially in day coaches, will be appreciated by those old enough to recall the sick traveler, who in the days gone by, haggard and coughing, made innumerable trips to the water tank and its one tin cup. Scrupulous care is exercised in the selection of pure drinking water. The receptacles in which it is carried must be spotless, and to insure that state, they are steamed periodically; also the water must be properly iced. The ice must be handled with tongs; never touched by the hand. Neither may a hand touch the inside of the water tank. These precautions are to prevent any possible contamination from the introduction of germs.

That public utilities companies realize the need for cleanliness and sanitation and as a matter of routine protect the health of their patrons is shown by the safeguards with which the Canadian Pacific Railway Company surrounds travelers on its lines.

Cars are renovated after each trip; bedding on Pullmans is disinfected; screening against flies and dust and a ventilation system is provided; dietetic service is offered on its diners. To insure further the health of its patrons, employees are taught First Aid. Hostels are provided at stopover points where employees may find rest and recreation.

Passenger cars are thoroughly renovated after each trip. No cursory swishing of brooms and slushing of scrub water today; instead, the car cushions and carpets are removed, the cars sealed and fumigated and then cleaned by vacuum process. The compressed air removes every atom of dust, germ laden or innocent, that may have settled into cracks or lodged on carvings. Every car that starts from a division point is as clean as when it came fresh from the builders.

Sleeping cars naturally come in for extraordinary cleansing efforts. The linens are cleansed in the most modern of laundries and come back as fresh and clean as heat and water can make them. Mattresses, blankets, and pillows are cleaned, aired, and disinfected. The Canadian Pacific uses three sheets on each berth, two to sleep between and the third over the blanket, thereby keeping the blanket from contact with the sleeper's body.

While in use, all cars are carefully ventilated, and in sleeping, dining and parlor cars electric fans are provided for the traveler's comfort. Strict attention is demanded in the matter of maintaining even temperatures. Em-

Courtesy Canadian Pacific.

Travelers who view the beauties of Lake Louise in the Canadian Rockies need have no thought of their physical well-being enroute. Rigid sanitary rules of the Canadian Pacific Railway insure cleanliness on all cars whether coach, Pullman, or diner.

ployees must see that the temperature remains as nearly as possible at 70 degrees during the day and between 60 and 65 degrees during the night. Overheating must be especially guarded against. During extremely cold weather, sleepers and parlor cars are fitted with triple windows and an extra blanket is hung over the windows after the berths are made up to guard against possible drafts. Experienced travelers claim that greater comfort is to be had in Canadian Pacific sleepers in cold weather than on sleepers farther south where less protection is provided against the rigors of winter.

Nowhere in the world do travelers enjoy the comforts en route that they do in America, and that means Canada, too. True, one must pay extra to travel in Pullman, standard, buffet, parlor, or observation cars, but the additional comforts gained by so doing amply repay the extra cost. Dressing rooms on these cars embody every known device to render dressing and travel easy. Liquid soap is supplied through individual containers; linen towels, individual of course, are furnished in abundance; dental lavatories have abolished the old nuisance of cleansing the teeth in wash basins. All these conveniences, as well as the cars, are kept as free from dust and soil enroute as constant attention and polishing by the porter can effect. Adequate screening is provided to guard against the entrance of flies, mosquitoes, and other insects in season. This measure insures not only comfort, but protection from possible germ-laden carriers.

Sweeping en route must be done with a vacuum cleaner or, where that service has not been installed, with a brush and dustpan, to prevent the flirting of dust. Brooms are abolished. Porters are trained to remove accumulating dust with soft cloths which do not scatter the offending item as did the old time feather duster. Strict rules forbid the use of water in toilet hoppers for scrubbing or mopping floors. Fresh water obtained from unquestionable sources must be used. Neither may the cloths, sponges or brushes used in cleansing cuspidors, be used in cleaning any part of a car. The most far-seeing and stringent of rules are promulgated and the close oversight of superiors together with the threat of instant dismissal for infraction of said rules insures faithful adherence to them.

In the case of dining cars, the same care is exercised in cleaning, heating, and ventilation as with sleepers, supplemented by extra care in guarding the preparation and service of food. Each chef has a personal pride in his tiny kitchen and its array of shining cooking utensils. "Cleanliness" and "Purity" are the watchwords of each dining car chef. These two attributes must be applicable to the food even from its original source of supply. Therefore, commissary storerooms, cold rooms in which meat, fish and poultry are kept until needed, and butcher shops must be kept absolutely clean and well ventilated. Not only this, but supplies are bought only from sources known to be clean and sanitary.

Dining Car Dietetic Service

The dining car conductor is also a dietitian, ready to make suggestions for a selection from the menu. Here is a concrete example of his helpfulness. A certain passenger, who was feeling somewhat indisposed

Courtesy Canadian Pacific.

Great care is exercised in cleaning dining cars supplemented by additional care in guarding the preparation and service of food.

and had no desire for heavy food, ordered fish and milk. The conductor politely informed her that this was an unfortunate combination in her condition and selected something else for her. As she left the car, he said to her, "If you do not feel better in an hour or so, come back to this car and I'll fix you up a drink that will help you." His courtesy was most heartily appreciated.

In order to attain the most sanitary and hygienic service, foods in individual containers are purchased whenever practicable for diners. Cereals in small cartons, marmalades, jams and preserves in single, but generous single portions, ice cream in individually wrapped portions are some of the items so served. Whether one orders oysters on the half shell or oyster stew on a Canadian Pacific diner, he may be sure that they will be only the best shell oysters. We all know that the oyster, once released from its shell, dies, and no matter how carefully kept in bulk, it cannot be as fresh as the oyster on the shell. For this reason, only shell oysters are served whether for frying, stews, or soup.

It has been said that Canadian Pacific diners do not carry can openers. They have no use for them. Canned goods are taboo. Everything served must be fresh from the farm, or garden, ranch, lake, or ocean.

Perfect sleeping and dining car service is only possible where the employees are healthy and contented. Every man serving on these cars of the Canadian Pacific must have a clean bill of health. Company doctors are located at all divisional points to examine employees who do not feel well or who show the slightest indication of disease.

Contentment can only be attained from satisfactory working conditions and adequate remuneration. The Canadian Pacific is noted for the liberal wages paid and is one of the pioneers in providing clean, healthy quarters for employees laying over from home station. At all lay-over points such as Winnipeg, Calgary, and Vancouver, the company has built large hostels which are run along the lines of the Y. M. C. A., being provided with shower and plunge baths, sleeping quarters, reading and writing rooms, in charge of a competent caretaker. In the early days of railroading when employees were away from home there was no place for them to spend their spare time, except in hotels and saloons, often far from clean, where they frequently spent all their earnings and were not always in the best of condition to perform their work when they returned to duty. Through the foresight of the manager of the Sleeping, Parlor and Dining Car Service, this deplorable condition has been overcome, and clean, healthy environment is provided in the company hostels. The result is that employees are always ready and efficient to render the very best service.

Courtesy Canadian Pacific.

The crèche in Vancouver Station, maintained by the Canadian Pacific, has proved a blessing to traveling mothers.

A constant endeavor to devise new mechanical contrivances that will further the safety of travelers is being made, and employees are encouraged to use their wits and talents along this direction. One of the newest inventions adopted by the Canadian Pacific is a small but valuable item, a track torpedo which functions in three ways. When exploded by a passing train it gives forth a loud detonation, a vivid flare, and a pungent odor so that there is practically no possibility of the warning going unnoticed.

Lessons in First Aid are made available for employees and the knowledge thus acquired is often of great value, particularly among the employees themselves. For instance, a porter slipped and fell under a train which almost severed his leg. He would surely have bled to death but for the timely assistance of another employee who, through his First Aid knowledge, was able to stop the flow of blood thus saving the porter's life, the doctors declared. This general knowledge among the trainmen of "what to do" in the event of an accident or sudden illness on the part of a traveler is a comforting assurance to prospective tourists who are inclined to worry.

The public in general only notes the efforts made by the railways for its comfort and health, when they are brought to its attention by a cessation of some feature of the system. It takes for granted the smooth running and efficient service, little realizing the wheels within wheels and minute details that are ever working to protect its health and insure its comfort while traveling.

American Medical Association Elects Officers

Dr. R. L. Wilbur of Stanford, Cal., president of the Leland Stanford Jr. University, was elected at the St. Louis session May 25 as president of the American Medical Association. He will assume office at next year's convention, which will be held in San Francisco.

Dr. Willard Bartlett of St. Louis was named vice president-elect. Dr. Alexander R. Craig of Chicago was re-elected secretary, and Dr. Austin A. Hayden of Chicago was chosen treasurer to succeed Dr. William Allen Pusey of Chicago, who had held the post thirty years.

Dr. F. C. Warnshuis of Grand Rapids, Mich., was elected speaker of the House of Delegates. As vice-speaker he presided at the present session of the House, due to the death last October of Dr. Dwight H. Murray of Syracuse, N. Y. Dr. Rook Slyster of Wisconsin was chosen vice-speaker.

How Modern Medicine Is "Different"*

THE author's childhood days were spent in a rather large medical center, where the tall, benevolent physician who took care of the children with scarlet fever, after previously having brought them into the world, who took care of the adults when they were sick, who was surgeon for the railroad company, served also as coroner's physician. Tall, gray bearded, with a long frock coat, he made an impression which in prep school days was visualized in the form of Coleridge's "Ancient Mariner," for, despite the absence of the glittering eye, he always seemed to have time to talk and tell tales of his busy life. The bearded physician is still seen, but more often on the stage than off. Usually smooth shaven, young "at least in appearance" the physician of today is hard to distinguish from any other man of affairs. Is this only a superficial characterization, or does it really mean that modern medicine is different from the medicine of our childhood days?

Doctor's Day Is Index

Perhaps the best method of learning what modern medicine actually means, what is necessary properly to perform the healing art, is by following the busy physician through twenty-four hours of any day. In speaking of the "healing art" emphasis is placed entirely on the point of view of the patient, ignoring for the time being the many extensive fields of investigation which have served to differentiate present practice of medicine from that of the past.

That there are two distinct sides to medicine as a science is, of course, appreciated by any student of modern biological methods; but that a large amount of the so-called scientific or laboratory work in medicine has to do directly with proper treatment of the individual patient is a truth not generally recognized by the public, often not by physicians themselves. But the great tendency in modern medicine today in the actual treatment of disease is to follow the dictum that the patient has a disease and not that the disease has a patient. Many of the present popular cults in pseudo-medicine are founded on the neglect of this principle by the medical practitioner. Imaginary illness does not exist. Pains for which no cause is found are still pains to the complaining patient. It is to be noted that instead of representing the primary insult of the disease-producing agent, the disease picture represents but the reaction of the individual to that reagent. It is almost an axiom to say that no two persons will react in the same way to a given pathological insult any more than they will react in the same way to a book, to the Peace Treaty, or to Mrs. Parker's descriptions of the I. W. W.

Individual Reactions Vary

As an instance of variations in individual reaction, one may cite almost any two cases of so-called shell shock or war neurasthenia. Here the reaction may be entirely psychic, the type of response depending almost entirely on the previous emotional history of the individual soldier, or it may simulate many varieties of organic disturbance. In the more purely physical realm two people may be exposed to the same bacterial disease, such as pulmonary tuberculosis, one an Irish policeman and the other a Jewish shop worker. The former is normally robust and healthy, well nourished, and accustomed to exposure to the elements; the latter is likely to be undernourished, underfed, unacquainted with sunshine, and often a stranger even to fresh air. Exposure of the two to the same strain and the same dose of tubercle bacilli and the prognosis for the two patients will be just the opposite of what is expected for the Jewish shop worker runs perhaps a fifty per cent better chance of recovery than does the Irish policeman. Surprising as this may sound, there is abundant statistical evidence proving the truth of the statement, the reason being that the Jewish race has established a racial immunity and the Irish has not.

Following the physician in his daily rounds, wherein has the position of the patient been changed by the more recent methods of practice? A clinic at 8 a. m. starts the day's work, and for one and one half hours the medical students of today are taught in the hospital at the bedside of the patient. Again individual patients are brought before the student, who is given the opportunity of examination, history taking, and discussion. From student days onward there is a radical change. The student is now taught to think for himself rather than to listen to and accept uncritically the words of the masters. The student must weigh the evidence so that when he, too, becomes a physician he can know how to give his patient the best.

Medicine today is more intensive in its application and more extensive in its scope than it has ever been before. The intensive application of modern medicine at the bedside is, of course, nothing new in principle and has been practised for years by good physicians even when the methods applied were limited to those found in a country village. In the extension of the boundaries of medicine there is, however, something new, if not in principle at least in the fields to which it now extends.

Physicians' Wider Interests

Not only must the physician of today know the social position, the home conditions, and the status of the family budget of the individual patient, but physicians as a whole are more widely concerned with prevention of disease by means of social legislation, by regulation of hours of labor, and by the multitudinous other activities which engross the mind of the intelligent public. It is rare, indeed, that the influence of the medical profession is not in evidence in almost all big movements dealing with the general welfare of society. The change of the Fourth of July celebration from a wild and tumultuous orgy of fireworks and lockjaw, destruction and death, to a sane and sensible realization of the meaning of the day may be directly attributed to the influence of members of the medical profession who believed that the annual waste of life was an unnecessary and quite undesirable evil. In Illinois the gubernatorial commission to study the condition of women in industry contained three physicians out of a total of seven members.

Ward rounds! The ward offers a collection of suffering humanity who only too frequently are suffering from preventable, not to say inexcusable defects in modern methods of living and work. Realizing this, the physician cannot longer be satisfied with a hasty examination, a scribbled prescription, and a hurried visit to the more lucrative patient of the private rooms. Why is the patient in the first bed ill? What is his complaint? What is the diagnosis? What is the

*The fourth of a series of articles on "Popular Medical Misconceptions," beginning with the March issue of THE NATION'S HEALTH.

fundamental cause of the illness? What the remedy? And how prevent his readmission to the hospital? The history is obtained by careful painstaking inquiry, but the physician is not satisfied with the information given by the patient alone. The patient may not be willing to disclose certain things about his family life, or his manner of living, and so the social service department brings out the fact that the man has a sick wife and that he, in addition to working hard every day, is up a good part of the night looking after his family.

A New Perspective

His complaints are vague, indefinite, rather difficult to interpret, and a thorough physical examination fails to reveal a straight-cut clinical picture. It is here that the modern physcian departs from the traditional path and applies to his individual patient the accumulated benefits of the more recent scientific investigations. It makes no difference what line of investigation is indicated, whether it be one of those fascinating heart traces obtained by the electro-cardiogram, whether it be an extended series of moving pictures of the stomach and intestines, a study of the function of the kidney by means of an elaborate chemical analysis, or what not, everything is done for the patient.

Whether in clinical investigation, or research, or scientific medicine, the point is that the patient receives the benefit of it all. This point should be emphasized because it seems that too many people do not grasp the idea that there can be no line of cleavage between scientific research, and treatment, between the laboratory and the patient. The charge has been made that medical practice has become so complicated, that a man must not only specialize in diseases of a certain part of the body, but if he wants to be really thorough, he must specialize in one disease or in the diseases of one organ. This, of course, is only a Shavian truth, for although it is true that it is not within the power of most men to grasp in detail all the intricacies of modern medical science, it is by no means necessary for him to do so. He must have an interpretative mind and an ability to utilize facts established by methods which he need not understand. If accumulated data already obtained do not appear to explain the symptoms of which the patient complains, he must be in a position to call to his aid his colleagues, men who have developed themselves along lines which lead to a different point of view of the patient and who may give an angle of insight that is missed by the first man. More evidence is thus accumulated and finally, the patient's story is complete. Cause and effect are often brought together as dramatically as in the sequence of Poe's stories. From the very nature of the methods employed the sequel of the patient-story which in this instance is called treatment, is thereby plainly and clearly indicated.

Treatment involves the successful relief of the patient's illness and prevention, when possible, of recurrences of the same complaint. And here the two phases of medicine which we have already spoken of, namely, the psychology of the individual and the social status, are carefully and thoroughly investigated. Mitral insufficiency is a leakage of the heart valves, a disease which diagnosed early and handled properly need not incapacitate a man from future wage earning even though his wage earning may be limited. To the rich the treatment of mitral insufficiency is a simple matter of life regulation, of vacations, but to the poor in the past the condition has been only too often the cause of repeated breakdowns and a series of hospital visits. The ward patient with mitral insufficiency, therefore, who enters the hospital with the complete heart breakdown, presents the question of how to prevent subsequent similar occurrences? The man is anxious to support his family. There are, indeed, few men who enjoy support of organized charity, be it state or private. Yet he has learned that every time he works he gets sick, and he knows full well that if he keeps it up the ultimate end will be complete incapacitation and death. Social service again supplements medical care and the man is referred to the dispensary heart clinic, where the treatment instituted in the hospital is continued, and where his capacity for other types of work than the one which caused his breakdown is carefully investigated. If necessary, he is taught a new trade. The stevedore becomes a basket weaver, and, although during this period a man and his family may necessarily become the objects of support by organized charity, it is not very long, speaking from the point of view of a man's life, before he again becomes a wage earner, frees himself from the necessity of repeated hospitalization. The stigma attached to pauperization is lifted and he becomes a wage earner, a free man. Restoration of social function becomes the objective —whether the affliction be diabetes or neurasthenia, tuberculosis or occupational neurosis, the physician of today aims to return the man, perhaps made sick by social neglect, back to society able to carry on the burden of life. That not all patients can carry on well is, of course, in the nature of things essentially true; but that a large percentage of handicapped are returned is now a matter of statistical history. In certain industrial organizations today various jobs have been analyzed in such a way as to make it possible for an industrial physician to fit men or women partially handicapped into jobs which they can perform as completely as a fully normal individual. Difficult as is the problem of industrial regeneration of the individual patient, it is the real object of treatment. It makes not one iota of difference how purely scientific in its researches an institution may be, how intensive the investigative work, modern medicine connotes the extension of the institution's activities into the very fundaments of a man's existence, if such extension is necessary for rehabilitation.

Care for Middle Class

One criticism of modern medicine which has been discussed and which is being discussed more freely all the time, is that the best practice today is open only to the rich and to the poor, but that without either pauperization or indebtedness, the great middle class finds it difficult to obtain what the very poor can obtain in medicine. This situation is being met by a definite effort of reorganization so that the middle class can receive the best modern medicine gives without losing its self-respect or going in debt for life. At present the fees, necessarily large, for special investigation are not, generally speaking, so graduated that the man who cannot afford the whole thing can pay part. This is true of the hospital room, trained nurse, just the same as it is true of the special investigation. Usually the better physicians are available, if not for house calls, at least for hospital work, at fees consistent with the income of the patient; but the hospital finds that it cannot afford to reduce rates for its pay patients without larger endowments than hospitals now have, and the nurse, whose entire income depends on her momentary case, finds it impossible to reduce her fees. That something must be done to remedy this condition is a recognized fact which is receiving the careful attention of those interested in an extension of the best medical practices to the general community.

Cities Provide Popular Summer Recreations

Playgrounds, Camps, Swimming Pools Furnish City-Bred Health and Fun

By HELEN SEDGWICK JONES, Community Service, New York City

SURE, we're going to win! remarked the wiry, freckle-faced youngster. "We're all in fine trim and Bill's new bat and glove work just slick. We tried 'em out yesterday."

It was a hot day in July and the possessor of the freckles had acquired them through a short succession of summer seasons filled with just such activities as the one now in view. He was healthy and happy and too busy to get into mischief. The secret of it was that his city had realized that boys and girls had nothing definite to do in the summer when school was out and had therefore provided them with playgrounds and athletic fields where they might have a chance to work off their surplus energy.

Many other cities have had the same foresight! Some have gone even farther and provided golf courses and summer camps and community buildings so that the fathers and mothers as well as the children may have an opportunity to play. Money has either been appropriated from the city funds or donated by private citizens for the purpose of building and maintaining these facilities and a recreation commissioner has been employed whose sole business it is to see that the facilities are used and that wholesome recreation activities are carried on—in many cases, during the entire year.

But play truly comes into its own in the summertime when the great outdoors calls to young and old to come out and play. During this season the playgrounds and athletic fields in most cities are kept open from nine to six during the day and often times in the evening. Sandboxes, small swings and slides, teeters and a wading pool are reserved for the toddlers. More castles and cities are built by tiny hands on American playgrounds each summer than were built in a century when knighthood was in flower. And during June, July, and August, what is more refreshing to little feet than to paddle through the cool water of a wading pool or a boat-sailing pond? Such refreshment, many cities serve.

Real Play Houses Provided

Larger swings, teeters, and giant strides are available for older boys and girls. In the open spaces folk dancing and such games as volley ball, captain ball, and baseball are conducted by play leaders.

Playing house is a summer vogue with certain ages, just as it always has been and ever will be. And it is commendable to find the dignified playground authorities in one city supplying the demand with honest-to-goodness playhouses. In the parks in Hartford, Conn., there are whole villages of tiny dwellings four feet high, with canvas roofs painted bright red, each furnished with a small wooden table, four wooden chairs, and a set of wooden play blocks. The wire netting which forms the sides of the houses lets in the sun and air and the green grass makes a soft and velvety carpet. Here both boys and girls may be found carrying on all sorts of community activities—running department stores, carpenter shops, going to church, attending weddings, making social calls, and doing many other interesting things that the oldest of the grown-ups do. All nationalities are represented and many social facts and customs are learned through the activities carried on in these tiny villages.

Courtesy Community Service.

Hartford, Conn., provides these tiny dwellings in its parks to satisfy the natural desire of every child to play house.

Where there is a municipal swimming pool or bathing beach, swimming meets and water carnivals are very popular. Sometimes the whole community unites with much enthusiasm in a program of water contests, games and sports which are open to all ages.

Smaller towns, especially, go in for play picnics, play days or play festivals, with athletic programs in which the whole community takes part. Out-of-door pageants are given, in which sometimes as many as two or three hundred people perform. Our bombastic Fourth of July of yesterday, is more and more giving way to this sort of celebration, leaving this red letter day less marred by the kind of accidents which formerly attended it.

During the last year or two roller skating meets have become very popular as a summer pastime. Not long ago a city-wide meet was held in Greenville, S. C. Anyone from eight to sixty years of age was permitted to enter one or more of the seventeen events. There were two hundred entries and one hundred spectators, two-thirds of the crowd taking part. The affair was so successful that Greenville plans to make the roller skating meet an annual event.

Kite tournaments call for the kind of ingenuity and skill which shows up

Courtesy Community Service.

Wading pools attain popularity with the younger citizens.

best as the thermometer ascends. In Chicago and in Middletown, Ohio, kites of all shapes and sizes are entered in annual kite tournaments. Much excitement is aroused. Prizes are awarded the makers of the best kites and especial honor attaches itself to the victors in the annual kite-battles in the clouds.

Pet Shows Are Popular

When it is too hot for so much excitement, many groups of children turn to quiet games or stories. Wonderful tales are told each season by play leaders or by "gypsies" who come on to the playgrounds and play streets in some municipalities dressed in bright colored dresses and jingling jewelry. Basket-making and sewing are other diversions opened to many girls, while boys are afforded opportunities to make tin-can toys and furniture.

Sometimes a pet show is held on the playground. This gives each boy and girl a chance to show off a much admired pet. At the show held last summer in Lexington, Ky., a surprising variety of live stock was exhibited including bears, wolves, alligators, coons, cats, dogs, birds, possums, snakes, and gold-fish.

The extra hour afforded by daylight saving in a number of cities has meant an extra hour of fun for the men and women who spend the greater part of their time earning the means whereby to subsist. Baseball, handball, volleyball, and tennis leagues have been organized and the game tournaments have been played off amid much enthusiasm during the twilight hour. The anticipation of strenuous open air exercise at the end of a day shortens hours of monotonous routine which otherwise might seem unbearable.

A twilight baseball league has been started in Visalia, Cal. Only men over eighteen years of age are permitted to become members. Districts, rather than picked teams, play against each other and the interest aroused has made new friendliness among many individuals. Whether the games are enjoyed or not may be judged from the remark of one member who was heard to say one morning: "My team lost twenty-six to four last night, but what's the difference—it's all in the fun of playing. Why, I'd give them a dollar a game just to let me play."

Horseshoe pitching or quoits—the game our fathers and grandfathers and great grandfathers played—has enjoyed a revival the country over during recent years. Interest in this sport is especially keen in Long Beach, Cal., Minneapolis, Minn., and Zanesville, Ohio. In Zanesville, a league has been perfected and the city divided into four sections, each represented by sixteen teams. Members have been recruited from industrial plants, fire engine companies, churches, and civic and social organizations. Last summer a city-wide tournament was held at the county fair and the season wound up with a tournament and barbecue.

Community singing in the parks or band concerts invite the attention of music lovers and musicians during summer evenings. Outdoor dancing pavilions where splendid music is furnished are provided by some cities. Inconspicuous supervision is supplied, and ten or fifteen cents will allow a person to dance the entire evening. These dance pavilions are very popular and in one city the vicious dance resorts which formerly drew so many of the young people have been entirely abandoned.

Gardening as Recreation

Professionals in the business might not call gardening a recreation but to the man or woman weary from bending over a desk, who longs to get "next to nature," or to the boy or girl who takes pride in watching things grow and finally develop into real produce fit for canning or sale, there is certainly a genuine enjoyment in this form of activity. Detroit's recreation commissioner says "People in cities live an artificial life, forgetting the wonders of nature. Gardening helps to bring them back to nature. When one is close to nature, he is rested and receives recreation." Over

Courtesy Community Service.

Horseshoes has been revived as a popular pastime in some municipalities, notably Long Beach, Cal.; Minneapolis, Minn., and Zanesville, Ohio.

Courtesy Community Service.
Well rolled tennis courts are maintained by many cities and are seldom seen empty during the summer months.

twelve hundred children watched their own gardens grow in Detroit last summer and raised over seven thousand dollars worth of vegetables. In some cases, whole families were granted garden space by the recreation department.

All these activities go to make life more worthwhile during the weeks of strenuous work but there comes a time when work is suspended for a week or two and the chance to take a real vacation is at hand. Those who are fortunate enough to have an automobile in which to spend their vacations will find auto camps fitted up for their express pleasure in many cities. Shade, shelter houses, electric lights, ovens or stoves, free gas or firewood, sinks for washing dishes and laundry, tables and chairs, and swings and slides for the children are afforded on these camping grounds. A fee of from twenty-five to fifty cents a day is charged and a time limit of from one to two weeks is usually put on the stay of any one party. Strangers are thus made to feel at home and the city in turn is far-famed for its hospitality.

Cities Provide Camp Grounds

There are many, however, who have little money to spend for this vacation yet it is altogether desirable that they, like their more fortunate brothers, should have the benefit of a change. Several cities have recognized this need and have provided camping grounds, fitted up with recreation facilities and provided with a staff of helpers and guides, where people may go at small expense. Those near Los Angeles are probably the most noted. They are situated in the mountains far above the heat and crowds of the city. Last summer, four thousand Los Angeles people, men, women and children, spent their vacations in these camps. A little booklet on Summer Camps issued by Community Service, 315 Fourth Avenue, New York city describes the groups of campers who use this recreation space as "composed of citizens from every walk of life." An adult pays from $14.25 to $16.50 for a thirteen-day outing; children over five, $12.50, toddlers $6.50 and babies $3.00. While there, they live in cabins built in the shade of tall fir trees and cedars; eat their meals in a big open air dining room; and at night play games, tell stories, and sing songs around the camp fire. They may read, go swimming in the swimming pool, fish, hike or play hockey, volley ball, or baseball on the big athletic fields. In short, whatever wholesome recreation they desire to choose is near at hand inviting them to participate. Thus they come back to work in the city re-created in mind and body.

Each year more and more cities are providing recreational facilities for their citizens. They have found that recreation pays in health, in happiness and in better citizenship on the part of their people. And they can't be blamed if they feel a spark of self-conscious pride when they hear one of their coming citizens remark to a youthful stranger in the community "Aw, wha' d'ya t'ink? This ain't no dead town! There's a swimmin' race or a ball game or somethin' else that's fun for us fellas to do here all the time—summer 'specially."

Faulty Foods and Gastro-Intestinal Disease

IN CERTAIN Himalayan races gastro-intestinal disorders do not exist and the abdomen sensitive to nerve impressions, to fatigue, anxiety, or cold is unknown. Their "buoyant abdominal health" in contrast with the dyspeptic and colonic lamentations of western peoples constitutes the burden of a lecture delivered recently by Robert McCarrison at the University of Pittsburgh. These races are of magnificent physique, preserving until late in life the characters of youth. They are unusually fertile and are endowed with nervous systems of marked stability. Far removed from the refinements of civilization, their mode of life offered a fine field for the special study undertaken by McCarrison in a deficiency disease inquiry undertaken for the Indian Research Fund Association. During the entire period of his association with these people McCarrison never saw a case of asthenic dyspepsia, of gastric or duodenal ulcer, of appendicitis, of mucous colitis, or of cancer, although his operating list averaged more than four hundred operations a year. The cases in which attention was directed to the viscera were of the rarest, their consciousness of this part of their anatomy, as a rule, relating solely to sensations of hunger.

Searching for an explanation of this difference in the incidence of gastro-intestinal disease in the two people's McCarrison attributed it, in the main, to four circumstances: (1) Infants are reared as Nature intended them—at the breast. If this source of nourishment fails them, they die; and at least are spared the future gastro-intestinal miseries which so often have their origin in the first bottle. (2) The people live on unsophisticated food of nature; milk, eggs, whole grains, fruit, and vegetables. Not one in a thousand of them has ever seen tinned salmon, chocolate, or a patent infant food; less sugar is imported into their country in a year than is used in a moderately sized hotel in a single day. (3) Their religion prohibits alcohol and, although they do not always lead in this re-

spect a strictly religious life, nevertheless they are eminently a teetotal race. (4) Their manner of life requires the vigorous exercise of their bodies.

To a study of these differences in the habits of the Himalayans as compared with western peoples McCarrison addressed his inquiry, and the discourse reported in the *Lancet* of February 4, 1922, concerns itself with the first two factors and affirms on unequivocal evidence that the two chief causes of disease and death are food and drink.

The same sources of foods are utilized by civilized man as by these primitive peoples, but with what a difference! One way or another, by desiccation, by chemicals, by heating, by freezing and thawing, by oxidation and decomposition, by milling and polishing, he applies the principles of his civilization—the elimination of the natural and the substitution of the artificial—to the food he eats and the fluid he drinks. With such skill does he do so that he often converts his food into a "dead" fuel mass, devoid of those vitamins which are to it as the magneto's spark to the fuel mixture of a petrol-driven engine. Unmindful, too, or more often ignorant, of the composition of the fuel-mixture with which he charges his human machine, he joins deficiencies of some essentials with excesses of others, heedless of the intimate relation of bodily balance to these food ingredients.

In food imbalance the gastro-intestinal tract is the first to suffer. Disorders of digestion, absorption, and assimilation are the signs that our ship is running on the rocks, and as good pilots we must be aware of them. McCarrison charges that we are apt to assume more readily the offices of salvors of such wrecks than of pilots whose function is to prevent them.

Not only is the functional failure of the digestive system an early evidence of faulty food, but the gastro-intestinal tract is often the first to exhibit evidence of infection by pathogenic germs because of it. Food is taken into the body to repair tissue waste, to supply energy, and to provide the medium for the chemical reactions of the body. It is not necessary to make laboratory experimentation to prove that if a woman lives on white bread, artificial foods, and tea, with a minimum of meats and green foods, she is prone to suffer from such digestive disorders as dyspepsia and colonic disease. Such a diet favors the development in the digestive tract of fermentative organisms, and makes relatively more deficient the vitamins necessary to healthy cellular action: nor does it contain a sufficiency of vegetable residue, of cellulose, waxes, and vegetable salts to insure natural action of the bowels.

Among the dietary faults incriminated McCarrison enumerates: (1) the tendency in modern times to rear children artificially, on foods inferior not only in vitamins, but enzymes, thyroid derivatives, and other essentials; (2) the comparative rarity of fresh fruit and the scantiness of green vegetables even on the tables of the rich; and the methods of cooking which extract their vitamins and salts; (3) the use of stale foods involving the introduction of factors incidental to oxidation and putrefaction.

The frequency with which deficient and ill balanced foods are used is most apparent when the diatetic habits of persons in subnormal health are considered. Prejudice, penury, ignorance, habit—often prevent the proper use and choice of health giving foods. Who is not familiar with the spoiled child among well to do classes, unhealthy of appetite, pasty in complexion, who, deprived of the necessary ingredients of a well balanced natural food, craves chocolates and other dainties so much used to excess? Or with the pale, overworked, anemic girl, static with visceroptosis, acne, or seborrhea, and oftentimes with vague psychoses who subsists chiefly on white bread and tea? Or with the languid lady, devoid of healthful occupation, who deprives herself, for some imaginary reason, of substances essential to her well being? Some live in luxury whose ignorance or fancy debars from choosing the food aright.

Latterly many have been inclined to assume a "too-vitamin" attitude toward the diet. It is safer at all times to place the stress on the well balanced ration. It is unwise to consider any of the essential ingredients of food, whether carbohydrates, fats, salts, water, or vitamins as independent of the assistance derivable from their associates in maintaining digestive and nutritive function. No doubt some of these have special relations to others, as, for instance, that of iodin to fats, that of vitamin B to carbohydrates, that of vitamin A to lipoids, calcium, and phosphorus-holding substances, and that of vitamin C to inorganic salts.

In campaigns for efficient feeding it is to be emphasized that the ranks of the deficiently fed do not include only infants and children, nor does access to abundance of food necessarily protect from food deficiency. The first need is to instruct the masses as to the food requirements of the body, and then to apply the results of science to the production of natural foods in abundance and to their widespread and cheap distribution rather than to the erection of institutions for the treatment of maladies due to their want.

Centenary of Bretonneau

MANY of the American medical officers who served over-seas during the World War will remember with pleasure the very artistic monument in the Place Emile Zola, opposite the venerable Cathedral of Tours hallowed by some of the stirring events in the life of Joan of Arc. They will recall the beautiful bronze figure of Tours enthroned and in the act of crowning with laurels three of her sons whose heads appear in bas-relief on a plaque affixed to the pedestal below. Those who took the trouble to decipher the names of these heroes read the words, Bretonneau, Trousseau, and Velpeau, and those who visited the art gallery in the Archbishop's Palace a stone's-throw away brought away with them an appreciative memory of the painting of the latter operating in his surgical clinic at Paris. Velpeau is a name known to all physicians, some know something of the brilliant Trousseau, but of Bretonneau, whose apostles they were and to whom the entire world of medicine owes an enormous debt, few know anything at all. Yet it was he who ushered in and prepared the way for the discoveries of Pasteur and who deserves first rank among the men of genius who by their brilliancy and the importance of their work have illumined the route of scientific progress.

Recent French medical journals announce that, under the auspices of the School of Medicine and Pharmacy of Tours, there is to be held a centenary celebration on June 24, 25, and 26 next, to do homage to the memory of the great clinician and epidemiologist, Pierre-Fidèle Bretonneau, who in 1822 set forth the doctrine of the specificity of disease, thus

giving to the science of medicine an enormous forward impetus and directing its progress into a new path for the everlasting benefit of the human race. A modest physician, beginning his professional life as health officer of the market-town of Chenonceaux and practising later in provincial Tours, too busy with his researches to give afterthought to glory or renown, neglecting to publish many of the results of his observations, never receiving the official title of Professor de Faculté, never having more than a dozen students at a time, he was nevertheless able to make discoveries which reversed the scientific dogmas of his time and to stamp his genius indelibly on such men as Trousseau, Volpeau, Goraud, Moreau de Tours and Baillarger. His early work as a health officer naturally turned the current of his mind to the epidemic and contagious diseases and he devoted himself chiefly to the study of two of the most redoubtable infections which attack infancy and adolescence, diphtheria, and typhoid fever, to both of which he gave the names which they now bear. He made a study of the affections of the throat and pharynx and recognized the symptom-complex of diphtheria in 1821, and the following year he classified typhoid fever as a separate disease entity always characterized by the same pathological lesions, and localized at the some point.

While he was still at Chenonceaux, he observed that the fluids secreted by the canthorides and other biting insects provoked a skin lesion which varied according to the species of insect. He concluded that the product of the secretion of each species is specific and always produces the some organic lesion. Applying this method of thought to human medicine, he evolved the doctrine of the specificity of disease. This work, which has never been published but which will appear in print in connection with the forthcoming celebration, would probably have remained forever hidden had it not been for his devoted pupils Trousseau and Velpeau. It is difficult for us of today, living as we do in an age when every school child accepts as an article of faith the bacterial causation of disease, to realize the enormous importance of the principles which Bretonneau laid down and the gigantic scientific courage which their evolution represents. They were embodied in two statements whose clarity and precision merit the admiration and respect of all ages. (1) That each disease is determined by a special living being foreign to the individual. (2) That this living being always produces similar inflammations, that is to say, specific. He compared this living being to an entozoa, thus foreseeing and announcing the microbic theory thirty years before Pasteur.

Some of his aphorisms in support of his doctrine are equally illuminating:

A multitude of inflammations are determined by material, extrinsic causes, by purely poisonous beings from without and certainly foreign to the normal state of the organic structure.

It is the cause which stamps a lasting, particular characteristic upon the inflammation.

Each disease runs through various periods in a determined time and follows a constant and regular order in the development of the successive phases.

One should consider as specific every kind of inflammation which presents constant characteristics and possesses the property of transmitting itself from one individual to another.

During the centenary celebration, a suitable plaque will be placed upon the house where he was born in 1771 and where his ancesters practiced surgery in the tiny market-town of Saint-Georges-sur-Cher (Loir-et-Cher), while in Tours, to whose general hospital he devoted himself until his death in 1862, there will be held appropriate ceremonies to honor the man who with Laënnec, Bichat, and Cruveilhier at the beginning of the nineteenth century founded contemporary French medicine.

New England Health Institute

By JOHN T. BLACK, M.D., Commissioner State Department of Health, Hartford Conn.

THE New England Health Institute held in Hartford, Conn., May 1 to 6, 1922, one of the regional institutes suggested by the United States Public Health Service, reached a total registration of 850, and this despite the fact that several conflicting meetings were in progress at the same time. Three lectures were scheduled for each hour from Monday at 3 p. m. to Friday at 5 p. m. The average attendance by courses was as follows:

I	Health Administration	100
II	Preventable Diseases	150
III	Sanitation	50
IV	Tuberculosis	100
V	Venereal Diseases	125
VI	Child Hygiene	150
VII	Public Health Nursing	200
VIII	Social Work	150
IX	Mental Hygiene	100
X	Industrial Hygiene and Accident Prevention	50
XI	Food and Food Control	70
XII	Nutrition	125

The seventy-seven faculty members contributed their services and with but few exceptions the program was carried out precisely according to schedule. Highly representative men in their several fields conducted the lectures, among them such leaders as Drs. A. J. McLaughlin, C.-E. A. Winslow, J. E. Goldthwaite, L. Emmett Holt, David L. Edsall, Louis I. Dublin, Merrill E. Champion, Taliaferro Clark, R. M. Allen, A. W. Freeman, L. L. Lumsden, William F. Snow, Richard M. Smith, George E. Tucker, Professor C. E. Turner, and David Van Schaack. Few clinics were given and these were in Hartford institutions. No elaborate field trips were planned, although the opportunity was given to visit engineering and industrial works. The registration of courses by affiliation is of interest as indicative of the extension of health activities to different institutions. It included:

Health Officers—State and local	66
Health Departments—Heads of divisions, technicians, etc.	79
Nurses—Visiting, school, industrial, etc.	260
Physicians—Clinic, hospital, industrial, etc.	91
Teachers—College and school	35
Social workers—including social and mental hygiene	81
Students—Colleges and schools of health	55
Miscellaneous—Physical directors, probation officers	57
Non-affiliated—Persons interested in Public Health	53

At a meeting of the Advisory Board held during the institute, the following recommendations were adopted:

(1) That the Institute be held annually.

(2) That a registration fee not exceeding three dollars be charged.

(3) That the next meeting be held in Boston or a city in the vicinity, probably Worcester.

(4) That Dr. Eugene R. Kelley be Director for the 1923 meeting.

The United States Protects Her Milk Supply

Work of Department of Agriculture Has Made Nation Leader in Dairy Sanitation

By ERNEST KELLY, In Charge, Market Milk Investigations, Dairy Division, U. S. Department of Agriculture, Washington, D. C.

THOSE connected with public health work realize that proper protection of the food supply is one of their most important functions. What is true of the food supply in general is even more true of the milk supply. Milk is an extremely perishable product, an excellent medium for bacterial growth, and is the chief food of infants, young children, and many invalids. In addition, it is often used in a raw state without the application of heat so that existing bacteria are not destroyed.

The United States, has without doubt, led all countries in the protection of milk supplies, and yet it is remarkable to note that as far as known the first laws regulating milk were passed in Massachusetts only about sixty years ago. These first laws took no cognizance of the sanitary conditions of the milk supply but related solely to skimming and watering. These laws were followed by other sections, but it was not until a number of years had passed that any regulation was attempted to safeguard the production and handling of milk from a direct standpoint of the public health. As the science of bacteriology developed and was applied to the dairy industry, legislative bodies began to enact new legislation to control the sanitary quality of milk.

The United States Department of Agriculture early recognized the importance of this line of work and in 1897 started studies on the sanitation of milk supplies. In 1900 a very intensive series of studies was started which resulted in the creation of a market milk section of the Dairy Division in 1905. This section was formed to study problems concerned with sanitary milk production and distribution and to spread broadcast the results of these studies together with the findings of the research laboratories. Later on the demand for this class of work increased to such an extent that a market milk specialist was stationed at Salt Lake City, Utah, to handle the situation in the far west.

During the early days of this work the way was full of obstacles which had to be overcome and there were many discouraging features. The question of dairy sanitation was entirely new to the dairy farmer and he was full of distrust and suspicion of those who sought to regulate his business. Inspectors and educators were told that the dairy had always been run on the same old lines without any new-fangled notions, that all the children had drunk the milk, and no one had ever been sick because of it. As the work advanced, progress was slow but sure. The specialists of the Department, boards of health,

Milk cooler and insulated storage tanks. Experiments have shown the best ways of cooling and storing milk.

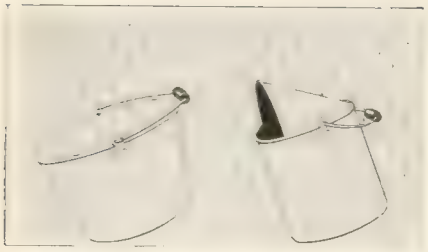
and the agricultural colleges spread the gospel of clean milk so vigorously that the influence began to be felt and prejudice was overcome. It is not necessary to trace all of the early steps in dairy sanitation but it may be interesting to point out the main features of the Department's work in this direction up to the present time.

Work in Dairy Sanitation

So far as dairy products are concerned the Department holds no police powers except that the Bureau of Chemistry is empowered to supervise all food products entering into interstate commerce and the Dairy Division is entrusted with the supervision of manufacture of renovated butter. Aside from these two features the work of the Dairy Division has been entirely educational and has been divided into these three general groups: (1) Research work to discover the factors affecting the wholesomeness of the milk supply; (2) the suggestion of legislative regulation and methods of enforcement; (3) the formulation of systems of inspection which will be educational, effective, and uniform.

The protection of milk supplies from certain specific diseases has engaged the attention of the Department to a great extent. Without doubt the most important phase of this work is that carried on by the Tuberculosis Eradication division which is encouraging the tuberculin testing of dairy cattle and is cooperating with the various States to stamp out bovine tuberculosis which is transmissible from the bovine animal to the human. The tuberculosis eradication division, through its educational propaganda, the actual testing of cattle, and the establishment of accredited herds which are under Government supervision, has done much to decrease the menace of tuberculous milk.

Research work done by the Pathological and other divisions of the Bureau of Animal Industry has also increased our knowledge of the cause and effect of certain animal diseases. It has sometimes been facetiously said that the Government spends vast sums of money to save hogs and other animals while it spends little or nothing to save children. Such a statement is misleading and untrue. While it may be a little aside from the subject of this paper, it is appropriate to mention that the large bulk of the activities of the Department relating to animal health have a direct bearing on the public health in the protection of meats, meat products, and milk supplies. If we add to this the work done by the Bureau of Chemistry for the protection of interstate shipment of food products, the work of the Dairy Division on dairy sanitation, the work of the U. S. Public Health Service, and that of the Children's Bureau, the Bureau of Education, and other branches of the Government, it can readily be



A graphic illustration, showing how the small top pail protects milk from contamination.

reckoned that the Government is making great effort to safeguard the lives and health not only of the infants but of the adult population as well.

Through its research laboratories and the market milk section, the Dairy Division has carried on intensive investigational work on those factors which will produce a low bacterial count in milk. Through its work it has pointed out the essential factors in clean milk production; the clean cow, small-top milking pail, sterilized utensils, and prompt and efficient cooling. In this connection, investigational work is being done on proper cleaning of the milking machine which is becoming a considerable factor in the production of milk for city milk supplies. Investigators have studied various methods of cleaning the machine and have determined a workable method.

Transportation Problem

Lesser factors, which do not influence the bacterial count of milk to as great a degree as the factors already outlined but which do have a bearing on the wholesomeness of the milk supply, have also been studied. Among these are the proper construction of dairy buildings, such as barns and milk houses to insure that they be simply built and easily kept clean. Working blueprints are sent to farmers for the construction of suitable sanitary buildings. Other things studied have been proper methods of straining milk, sewage and waste disposal, and water supplies.

In the early days milk came fairly direct from producer to consumer, but with the growth of cities, milk has had to travel long distances and pass through a complex system of distribution. Where milk is hauled for any considerable distance, the question of proper transportation is of great importance. For several years the Division has studied different methods of transportation, seeking to find the methods which will bring the milk to the cities in the best possible condition. Such studies have covered proper pre-cooling, different types of refrigerator cars, methods of icing, elimination of delays in transit, and types of tanks hauled on auto trucks.

After the milk reaches the city, it must undergo a number of processes, each having a direct bearing on its sanitary quality. Probably the chief advance made in handling general milk supplies came about through the introduction of pasteurization. At first pasteurization was carried on at relatively high temperatures for short periods of time and served as a means of prolonging the life of the milk so that it did not sour so quickly. It was soon found, however, that the old methods of pasteurization were not satisfactory, and that pasteurization at lower temperatures for longer periods of time was best. The Division has recommended a temperature of 145° F. maintained for thirty minutes. Chemical and bacteriological studies have shown that this is the optimum temperature at which no appreciable chemical changes are made in the milk constituents and all disease-producing organisms are killed. Studies have been carried on in city milk plants and many factors learned in the sanitary handling of milk.

Clean, healthy cows, well fed and kept in clean surroundings, constitute the first step in clean milk production.

Many of the early dairy laws were hurriedly compiled and were based on incomplete information regarding all phases of the subject. As knowledge of dairy sanitation grew, such laws became obsolete and have had to be revised. The Dairy Division has paid particular attention to these. It has been called upon to revise many city dairy laws and to go over tentative ordinances before their enactment for the purpose of suggesting changes. In general, milk ordinances in the past have been very cumbersome, containing inconsequential rules which served no useful purpose but confused and antagonized the farmer. Other ordinances have been so worded as to be unintelligible. For instance, one city enacted a milk law, which, contained one sentence of nearly 400 words. The Division's constant effort has been to make laws simple, efficient, understandable, and enforceable. Following this line further, with the cooperation of the Solicitor's office, a pamphlet was prepared in 1917 containing suggestions for a model milk ordinance. This "model ordinance" in brief, concise legal form has met a long felt need. The ordinance is variable to suit local conditions, there being no attempt to draw definite chemical and bacteriological standards, as it was the belief of the Division that such standards should be set only after a very careful survey of local conditions.

Educational Inspection

Realizing from the beginning the importance of educating dairy farmers rather than coercing them, the Division has always aimed to develop a system of dairy inspection which not only secures results, but lasting results. As the old motto goes, "A man convinced against his will is of the same opinion still." Of course, certain dairymen who wilfully and repeatedly violate laws have to be brought to account for their doings, but if they can be educated to see the reasonableness and the necessity of laws, the results obtained will be permanent. The Dairy Division long ago devised a score card system of dairy inspection whereby the dairy farms and city milk plants are rated mathematically on a score card which comprises the desirable sanitary features in milk production and handling. This score card has been introduced in hun-

Can clean milk be produced from such dirty cows?

dreds of cities. They not only give the farmer a printed record of desirable conditions but point out where his dairy is deficient. They also serve as a guide to inspectors and limit personal opinion and prejudice so far as is possible.

The workers of the Department have always been available to city and State health departments, so far as funds permit, without cost to those helped. At the request of city officials, from one to five men have been sent to go over the situation with local inspectors and health authorities. Specialists examine the existing laws to see if they are clear and comprehensive. They then make a study of local dairy conditions, going out with the local dairy inspectors and teaching them proper methods of inspection and instruction. Attention is also paid to the laboratory control of milk supplies. The Division has been in position to render service in the standardization of laboratory methods and technic. After conditions have been thoroughly noted, meetings are usually held with farmers, consumers, physicians, women's clubs, and citizens' organizations for the purpose of explaining how local conditions can be improved and the importance of such improvement. Since inauguration of this service over 200 cities have been given the benefit of such assistance. Within recent years twenty-four complete surveys have been made in which practically every dairy farm, milk plant, and transportation agency, has been thoroughly studied. After these surveys and inspection trips, city officials are given a complete report covering local conditions, together with recommendations for changes in ordinances and methods of inspection.

It is interesting to note in connection with this work of dairy sanitation that during the war the Department cooperated with the U. S. Public Health Service in improving the milk supplies of sixteen army cantonment zones. So far as I have been able to discover, there was not a single outbreak of disease traceable to milk at any of these cantonments.

The research laboratories of the Dairy Division have been instrumental in furnishing information on which its field work has been done. Aside from the vast amount of work done by the laboratories concerning the essential factors in clean milk production and proper pasteurization, there has been a considerable amount of work dealing with laboratory control of milk supplies. For instance, the Division's laboratories have carefully studied different types of media for use in counting bacteria in milk. Composition of media, their reaction, and incubating temperatures have been carefully studied and several new types of media have been evolved. Besides securing media which will give the best results for straight numerical counts, the laboratories have been successful in perfecting a number of media for differential counts. One of the interesting features of this work with media has been the adjustment on the basis of hydrogen-ion concentration. This has resulted not only in a more uniform media but it has enabled us to make certain differential media which point out differences in types of bacteria not heretofore obtainable. Specialists have only recently worked out a new media which it is hoped will give not only quantitative but qualitative counts at the same time.

A corner of one of the United States Dairy Division's Research Laboratories

Research workers in the laboratories have made extensive studies of the colon bacillus and streptococci. Results have been published on the differentiation of types, their significance in milk, and their thermal death point. These studies have had a most profound bearing on public health. The differentiation has led to a knowledge of the source of the various types found in milk and this has been interpreted to show their significance from a pathogenic standpoint. Experiments on the thermal death point of these organisms have also been exceedingly useful in determining an optimum time and temperature for pasteurization.

Hundreds of cities and towns, through correspondence and personal visits, have been led to improve their milk supplies to a great degree. Dairy laws and systems of inspection have become much more uniform and dairy farmers are accepting sane dairy inspection in good spirit. Statistics prove that farm conditions have improved and anyone familiar with the dairy business can easily see the difference between the dairies of today and those of his youth. Milk dealers' plants in the city have been equipped with better types of machinery, and approved pasteurizing devices.

The improvement seen in market milk is much more extraordinary when we realize that milk used in the average city comes from greater distances and travels through more complex channels than it did years ago. These complexities naturally add to the care which must be exercised in handling milk. In spite of this, the purity of the milk supply has not only held its own but has improved materially. A new type of man has sprung up in the dairy business; young men from the agricultural colleges, men who have been educated to the necessity of sanitary practices. The type of dairy inspectors has also changed, and cities throughout the country have much better milk supervision and a much better personnel of inspection forces than formerly. While the Department of Agriculture does not claim credit for all of the good work done, there is no doubt that its persistent efforts have had a decided influence on the situation.

Social and Economic Aspects of Epilepsy

Colonization Is Best Method from Viewpoint of State and Epileptic

By DWIGHT J. LADD, Champaign, Ill.

IT IS conservatively estimated that the ratio of epileptics to the general population is one to five hundred. At this rate, the number of epileptics in the United States would be about two hundred thousand; the number in the state of Illinois, approximately ten thousand.

There is a diversity of factors causing epilepsy. Diseases such as scarlatina, typhoid fever, measles, and smallpox may produce conditions which favor the development of epilepsy; injuries to the head or central nervous system may be followed by epilepsy; inheritance plays an important rôle. Although many leading biologists hesitate to apply the Mendelian law directly to epilepsy, they are agreed that the disease is very prone to develop in families which present a long line of alcoholic, feebleminded, insane, and syphilitic ancestors. Epilepsy is more apt to develop before or during the age of adolescence. In a study of 460 cases made by Osler, 428 or over 90 per cent of the cases developed before the age of 15. Sex has but little influence until the age of twenty, after which time males are more susceptible to the disease than females on account of their greater tendency to become alcoholic and to acquire syphilis as well as their greater tendency to engage in hazardous occupations.

The epileptic is at a disadvantage which no other class of defectives suffers. The epileptic child of five or six years of age has normal instincts. He has the same desire for play, the same craving for love and sympathy as his more fortunate playmates who scorn and deride him because he has "fits." When he attends public school, he is seldom understood by either his teacher or his schoolmates. At recess when he should be playing with the other children, he is likely to be seeking a quiet corner of the playground. If less fortunate, he may be constantly reminded that he is different from his associates. After school he must hurry home, for his parents fear to have him away from them unless they know that he is under the care of someone to protect him from injury.

About the age of adolescence the condition of the epileptic becomes even more pathetic. For the serious cases, school soon becomes too great a burden. Their physical development suffers little; their mental and moral faculties undergo deterioration. Their sexual passions become rampant, often making them a constant source of anxiety to their relatives and friends.

The epileptic has always been under a severe handicap. As a child he is kept close at home and is thought "queer" by his schoolmates. When he attains manhood he is unable to hold a steady job for his liability to attacks makes him an unsafe risk industrially.

In former days the epileptic was housed with the insane, the criminal, and the County's poor. Colonization seems today the best method. In a colony, outdoor work with a minimum of fatigue is supplied to the epileptic; he becomes a unit in the organization and overcomes the embarrassment of feeling himself a misfit. By suppressing propagation, colonization is of benefit to the State.

The histories of severe cases are tragedies. The following instances are typical of the social menace of unprotected epileptics:

Arthur J., sixteen years old, well developed physically, but not wanted at school, is unwilling to work. He spends his time with bad associates or ogling the little girls of the neighborhood. His widowed mother has paid out all her earnings for patent medicines and to "herb doctors" that guarantee a cure for epilepsy.

Elizabeth C., had her first spasm at the age of six, but attended school until she was twelve. At puberty she began to wander from home to become the victim of men on the streets. She was sent to the county hospital where she improved under treatment. She was released and remained at home for a time. She soon resumed her old habits and seemed to have lost all sense of morality. She gave birth to two illegitimate children, was arrested, and sent to the State Insane Asylum where she was reported to have syphilis. She is now a permanent charge of the State.

The individual, unable either to acquire an education or to hold a permanent position, is a financial loss to the State. The inability to obtain the ethical and spiritual training of the church and the school often causes many of these unfortunates to become problems for the physician, the police magistrate, and the lawyer.

The milder cases reach manhood or womanhood with a fair degree of education. They are perhaps quite proficient at some trade. Although they may have only two or three attacks during a year, the stigma of epilepsy is always associated with them. Managers of industries do not wish to employ individuals who have unconscious attacks and are likely to be seriously injured or killed as a result. Hot pipes, steep stairways, trucks and wagons are ever present, and should a person meet with an accident during an attack while at work, the employer would be liable for damages. The teaching or profession and business houses find them too great a responsibility. They go about from one position to another, seldom staying in one place longer than the first attack. In fact, the only work open to them are odd jobs and such positions as sympathetic employers may give them. It takes but a short time spent in wanderings of this kind to make the epileptic lose all hope of ever being of any use in the world. They realize that they "just exist"; they are ready for death; they often welcome it.

Under such circumstances both the epileptic and the family suffer. He must either "eke out" a meager existence with improper care or the living conditions of the family must be lowered. In the one instance, the epileptic remains a menace; in the other the family suffers an injustice: in both the State is injured because of its inefficient members.

It is not by a cultivation of a "higher" type of people, but by a more general conformity to a standard that society progresses. As the land of the State could by scientific cultivation be made to increase its yield, so could the people be brought to realize more of the values of life if they were able to attain more general

conformity to the present level of effectiveness. One would not expect to receive a hearty welcome of such improvements as community playgrounds, better schools, or better housing among a population reared in the dregs of human misery. As the individuals of a society prosper, the State progresses. It is the defective at large, who by his promiscuous habits swells the number of dependents and undermines the welfare of the State.

The rather recent places for treatment of epileptics were the county poor houses. This was doubly unfortunate. In the first place, it was unfair to the other inmates. As no provision was made for the distinction of cases, the epileptic, the vagabond, the "dead beat," and the unfortunate who had worked all of his life were thrown together. They were compelled to witness scenes which made them feel their misfortunes more keenly. It was also unfair to the epileptic to be detained in the poorhouse as he came to be regarded as "worthless." Grudgingly he was given charity when what he needed and craved was merely a chance to cultivate his own abilities under competent supervision.

Colonization Best Method

The practice of keeping epileptics in the insane asylums was worse than "poor house imprisonment." The horror of such treatment cannot be adequately described. It did not take many months of association with the insane to make the epileptic worse or insane. That such conditions were tolerated as long as they were is incredulous. Nevertheless, it was not until the middle of the nineteenth century that steps were taken to provide adequate care of epileptics. In 1867 a colony for epileptics was founded at Bielefeld, Germany. In the colony, the epileptic was associated with others similarly afflicted. He lived through the same trials and cares as those about him did. A bond of sympathy sprung up between the inmates. They understood and helped one another. It was also possible to make group studies of epileptics and work out a definite plan of colony care. A few years later colonies were built in England. In 1890 Ohio became the first state to establish an epileptic colony. Others were organized in New York (1894); Massachusetts (1898); New Jersey (1898); Kansas and Texas (1902); Indiana (1905); and in Virginia and in Connecticut (1910). Both Michigan and Minnesota have now provided institutional care for epileptics. The largest institution of this kind in the United States is the Craig Colony for Epileptics at Sonyea, New York. The daily average population for the year 1912 was 1381. The net cost to the State for the year was $234,224.02, the cost per patient being $169.59.

A colony should be located on wooded, slightly rolling land. This affords a natural means for segregation of the inmates. Each colony should have two main divisions, one for men and one for women. In each division, separate provision should be made for different grades of mentality. Separation by natural means such as woods or hills tends to make the patients more contented by removing the appearance of mechanical restraints. Buildings should be low one story structures of the bungalow type. Steep stairways and sharp corners should be avoided in order to decrease the danger of injury during an attack. Single rooms should not be used. Wards which can accommodate about twenty-five of the brighter patients should be provided; the lower grades can well live together in groups of about sixty.

Epileptics progress best when kept busy enough to produce a normal fatigue without over-work. The kind of work best suited for this purpose are outdoor occupations, such as gardening, carpentering, and blacksmithing. Manual work indoors is also helpful. No duty should be assigned which would endanger the life of a patient should he have a seizure. Tranquility in all undertakings is essential to his welfare. Outdoor recreations such as baseball, tennis, and skating should be provided. Socials, parties, and dances may be held for the milder types of patients. In fact, a quiet, normal routine of life is essential to the well-being of the epileptic.

Control of Propagation

A patient should prepare to remain in a colony indefinitely. This is not such a hardship as it would seem. A colony of epileptics is indeed a village in itself. Here the epileptic is among those of his own kind. He is a unit in the organization, not an unwelcome spectator. Life is again worth the living and he is a "man for a' that." Colonization helps to check the number of epileptics through suppression of marriage. Heredity plays an important part in epilepsy; some authorities place the number as high as 75 per cent. Control of propagation in this manner may seem a hardship, but to one who can look ahead and see the defective child, the misery and suffering it is going to cause, the advisability of such a régime will at once become apparent.

The epileptic is the cause of one of our urgent social problems. Our society has no place for him, he is friendless, too often homeless, and after continued discouragement, is hopeless. The colony is the only satisfactory method of treatment. It is only through systematic care that the epileptic can be made even partially self-supporting. It is not only better for the patient, but cheaper for the State. The per capita cost is less. The colony treatment, and only the colony treatment, furnishes a means whereby eugenic principles can be applied to weed out the defectives from society, a society which needs for its continuance the individuals best endowed physically and mentally.

National Conference of Social Work

Progress in social affairs, trends indicating the channels of activity in the next year, and arguments unanswerable demanding organized effort for human betterment are all brought out in the topics announced for the Forty-ninth Annual Meeting of the National Conference of Social Work, to be held at Providence, R. I., June 22 to 29, 1922.

Among the announced titles the following are significant:

Neglected fundamentals in children's work; underlying concepts in the world movement for health; the future of a community in an industrial civilization; racial diversities and social development; health experiments and demonstrations; the art of living; minimum standards of training for family case work; social standards for industry; community organization; rural communities; mental hygiene as a vital factor in education; mental hygiene in childhood; functions of the public and private agencies in the welfare work of the future; public welfare departments, their scope and form; and international aspects of the immigration problems.

The speakers on the program include the following: Allen T. Burns, Fred Croxton, John B. Dawson, Dr. Neva Deardorf, Prof. Julius Drachsler, Dr. C. E. Ford, Dr. C. Floyd Haviland, Robert W. Kelso, Prof. E. C. Lindemann, Dr. Charles S. Little, Owen R. Lovejoy, J. Prentice Murphy, Dr. C. C. Pierce, George Soule, Dr. Russell D. Sprague, Dr. Douglas Thom, Dr. George E. Vincent, and Dr. William A. White.

The Care of the Foot During Childhood

By JACOB GROSSMAN, M.D., Junior Adjunct Orthopedic Surgeon, Lebanon Hospital; Chief of the Orthopedic Clinic, Lebanon Hospital; Chief of the Orthopedic Clinic, Stuyvesant Polyclinic, New York City

THE importance of the routine examination of feet in children is at last being recognized. Heretofore, the eyes, the ears, the lungs, the teeth and hearts of children were all carefully examined. Very little attention had been given to the condition of the feet. Recognizing this lack of proper attention to a very important subject, the writer has published several articles in which stress was placed on the importance of including foot examinations in the general routine physical tests applied to children.

The first of these articles was entitled "Weak Feet in Children" and was published in the *Medical Record*, June 8, 1918. The second manuscript was entitled "A Plea for More Active Treatment of Weak Feet in Children" and appeared in the *Western Medical Times*, March, 1921. The final manuscript was entitled "The Value of Pedographs in Recording and Diagnosing Abnormal Foot Conditions in Children," and was published in the *Medical Record*, April 23, 1921. The present contribution will combine the main features of the three preceding manuscripts plus new observations noted since their publication.

From a clinical viewpoint weak feet in children do not differ materially from those in adults; still the history and the symptoms in the former are so different from those in the latter that a special description of the condition is warranted. Search of the literature reveals that until recently, this very important ailment in children had been very little emphasized. Many children are permitted to go through childhood handicapped by weak feet which in the majority of instances would respond to very simple corrective measures. After a very careful observation of an extensive number of cases of weak feet in adults, there is no doubt in the mind of the writer that in the vast majority the predisposition to weak feet or weak feet can be traced back to childhood. In other words, had better care been given to the feet of these patients when they were children, needless suffering in later life could have been avoided.

In the offspring of parents in whom there is a history of weak feet I have not infrequently found existing weak feet or a predisposition toward them. It is not uncommon to find a mother bringing to the clinic several children, all having weak feet. This fact with the many instances of familial weak feet that I have encountered in the clinics suggests that possibility of an inherited predisposition in those cases.

In infancy and early childhood the feet appear to be flat; this flatness is not permanent, but is the result of the osseous structures of the arch being surrounded by pads of fat. This has been proved by examination of frozen sections of specimens. As the child develops, the fat gradually disappears and the arch becomes more conspicuous. This change usually begins in the second year of life and is completed after the third year.

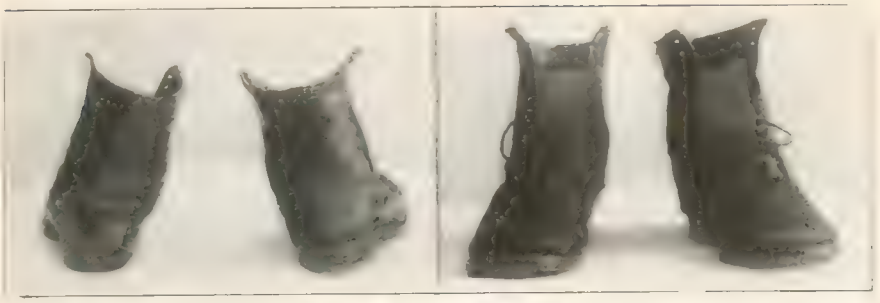
Henrietta V., two and one-half years of age. Marked congenital weak feet.

Normal children, when left to themselves, usually begin to creep during the seventh and eighth months. This should by all means be encouraged, as it meets the natural requirements and trains the bones, joints, and muscles to bear weight. After this creeping period comes a more trying period, that of walking. The transition from the former to the latter should be a natural one. When children are taught to stand on their feet too early, the untrained muscles, bones, and ligaments yield to the overweight; deformities of the foot are produced that may lead to the marked degree of deformity which we see in weak feet. The weight forces the astragalus forward and downward upon the oblique articulating surface of the os calcis, at the same time calling forth an outward rotation of the astragalus. This intended torsion is communicated to the other bones, resulting in a turning outward of the foot. The inner border of the astragalus endures more weight, the os calcis is turned outward, and a weak foot is the result. Hence it is safest to permit children to begin to walk when they themselves so desire. Premature walking aided by artificial appliances or devices is harmful and unnatural and should therefore be avoided.

Weak feet occur more frequently in females than in males. It is quite a common condition before the thirteenth year. The condition may be congenital or acquired. Congenital weak feet are occasionally found in combination with club feet. There is a tendency to weak foot deformity in a certain percentage of newborn infants. A marked flat-foot deformity is not of frequent occurrence. The dorsum of the foot during the embryonic stage is pressed against the leg and retained in that position after birth. The feet of the newborn persist in this attitude of rest for a long time. This should not be mistaken for a pathological condition. As time elapses the position of the feet in the majority of instances assumes the normal relationship to the legs. In instances where this attitude of the feet persists for a long time, can the feet be considered to be congenital weak feet? In some of these cases the sole of the foot is flat; in others it is convex. The contours of the bones are visible under the skin. The peroneal, flexor, and dorsal muscles of the foot are shortened.

Predisposition to weak feet due to heritage must again be emphasized. Many cases of weak feet in the offspring are found to be present where one or both parents have the condition. I have been strongly impressed with the frequency with which I have been able to demonstrate weak feet in brothers and sisters, as well as in one or both parents.

Acquired weak feet may be the result of, or occur in conjunction with, many conditions. In children with a general muscular relaxation, weak feet are very often present, the result of muscular weakness. Infantile paralysis in which the tibialis anticus is involved is the cause of paralytic weak feet. Rickets, especially with genu valgum, is often accompanied by weak feet. Injuries, among which fractures are the main ones, often give rise to traumatic weak feet. Occasionally the injury is the result of a wagon wheel passing over the foot, or the falling of a weight upon the foot. Overweight is a common cause of weak feet. Prolonged rest in bed from any of the infectious diseases, inflammatory or infectious conditions in or around the ankle or foot, may predispose the individual to weak feet. It is true that in a number of instances the history of the predisposing or exciting factor cannot be ascertained. It is a difficult matter to determine the cause in these cases.



What some feet can do to shoes

Shoes in Causation

Poorly fitting shoes in children can in the majority of cases be eliminated as a causative factor in the production of weak feet. The shoes made for children are very good ones; they have broad toes and are roomy enough to permit of free action of the small muscles of the feet. It is very important to wear stockings that fit well. Stockings which are too tight or too small will cramp the foot and in that way interfere with the proper action of the muscles of the foot, thereby predisposing the child to weak feet.

In the average case the foot appears to be turned outward below the ankle and the axis of the lower leg presents an outward deviation in the plane of the ankle. The internal ankle may project from a slight to a considerable degree. The arch of the foot is not only lowered, but in severe cases appears to be convex, the bulging resulting from constant lowering and outward turning of the head of astragalus and scaphoid. The inner border of the foot appears to be much longer than the outer.

In those cases resulting from a specific cause, such as infantile paralysis, injury, an infectious process, etc., this history is elicited. Some children have a limp, some fall, others turn the ankle; in other instances the children walk with the toes pointing outward. There are other instances where there are no subjective symptoms. The children are brought to the clinic because they always wear their shoes out on the inner borders of the soles and heels. In these cases the shoes are not only worn out on the inner borders of the soles and heels, but the inner surface of the last of the shoe is distinctly prominent and bulging, the result of the constant pressure of the displaced astragalus and scaphoid. Occasionally the children will complain of pain in one or both legs, the location of which pain is variable. At times it may be referred to the inner border of the boot, but more often it is referred to the calves of the legs. Other children tire easily and want to be carried continually. These children are often punished for refusing to walk as their parents feel that they are lazy and "spoiled" and therefore refuse to walk. There is not a child who is normal in every way, who would refuse to run and jump if permitted to do so. When they refuse, the only logical reason is that there is something the matter with them.

Edward B[illegible] [illegible] of age [illegible]

Symptoms of Weak Feet

In a number of instances the children are brought to the clinic to be treated for a sprain or a fracture of the ankle and the presence of weak feet is discovered for the first time. In these cases the history of any of the aforementioned subjective symptoms cannot be elicited. The mothers are unaware of the fact that their children have weak feet.

The gait of children who have weak feet is awkward. They walk upon the entire sole of the foot. The toes turn out and the soles and heels are worn out on the inner borders. The most important objective symptom is the eversion of the heels and heel cords. In the normal foot the heels and heel cords are either parallel to, or converge slightly toward a line drawn perpendicularly through the center of the trunk and continued downward to the ground. In weak feet there is a tendency for the heels and heel cords to be everted, to roll away from this midline. The eversion varies. In mild cases it usually is very slight, while in the more [illegible] it may be very marked. [illegible] usually is a lowering of the arch as a whole. In the early cases disturbance in the osseous structure of the arch is not discernible; there may [illegible] however, a slight stretching of the [illegible]mentous and muscular structures. [illegible]

Dora B., ten years of age. Her chief complaint is pain in the knees and calves. She shows second degree weak feet.

more stretched until finally there is complete collapse of the keystone of the arch and the sole of the foot becomes applied to the ground, resulting in a pes planus. With these changes the eversion of the heels and heel cords keeps pace, so that marked eversion is always present in the advanced cases.

Aids to Diagnosis

The displacement of the anterior tibial line is another valuable aid in diagnosing weak feet. Normally, the anterior tibial line falls over the first or second toes; in weak feet it usually falls towards the inner side of the big toe or over the center of the inner border of the foot. The anterior tibial line is found by following a line passing along the crest of the tibia and continuing it along the dorsum of the foot.

Spastic or rigid weak feet are rare in children. Occasionally one may be encountered. In these cases there is limitation of the range of motion due to the spasm of the muscles on the dorsum and outer side of the foot; the spasm resulting from shortening and contraction of these muscles owing to the persistent attitude of valgus.

The diagnosis of weak feet in children is made in the majority of instances by inspection. Occasionally walking or hopping tests may be used in addition. These methods are sufficient to give one a mental picture, which for the time being may enable one to make the diagnosis. We have no means at the present time of comparing these findings with those presented six months later, should our advice as to the improvement of the patient's condition, be sought for. We cannot say with any degree of accuracy whether the patient's condidition has improved, remained stationary or become worse. By means of properly made pedographs, we have a photographic reproduction of the condition of the patient from the initial visit, with which subsequent pedographs, taken at any subsequent time, can be compared. Hence we have at our disposal a means whereby we can accurately tell the patient what has occurred as the result of our treatment.

By the pedograph method five prominent signs are taken into consideration: (1) the pedograph picture; (2) the contour line; (3) the distance of the keystone of the arch below the Feiss line; (4) the muscular development of the soles of the foot, especially those under the arch of the foot; and (5) the presence or absence of the juvenile fat pad.

In taking the imprint the child places one foot in a solution of iron. The foot is then placed upon a blotting paper and the child is told to place all the weight on that foot. At this point the contour line is drawn by using a pencil held at right angles to the plane surface. This contour line demonstrates the degree of eversion of the heels and heel cords and the degree of inversion of the ankle. The muscular development of the soles of the feet should then be taken into consideration, as often a heavy bulging muscular layer will produce a picture of inversion of the ankle. The foot is then removed from the blotter and the distance of the scaphoid below the Feiss line is estimated. The Feiss line is represented by a line drawn from the posterior inferior aspect of the internal malleolus to the first metatarsophalangeal joint on its planter aspect. The scaphoid in the normal adult foot is usually found to be one-half inch below this line. In children it varies with age. The sole of the foot is then palpated and the muscular development noted as poor, fair or good. The presence of the juvenile fat pad is also sought for.

A solution of tannic acid is now applied to the iron imprint, which turns a jet black, giving us a record which can be preserved indefinitely.

The base lines and the auxiliary lines are now drawn on the pedograph for the estimation of the deformity should one be present. The first base line is drawn from a point posterior to the internal malleolus to the first metatarsophalangeal joint. The contour line extending beyond this denotes the degree of inversion of the ankle or eversion of the heels and heel cords. The line of axis weight bearing is next drawn, from the center of the heel to a point midway between the first and second toes. A line is next drawn at right angles to the line of axis weight bearing from a point posterior to the heel. Another line is drawn also at right angles to the line of axis weight bearing, from the first metatarsophalangeal joint. Midway between the last two lines, also at right angles to the line of axis weight bearing, is drawn the line of estimation. The line of estimation is then checked. One check is placed at the outer border of the imprint, the other check being placed at the junction of the line of estimation and the first base line, or should valgus be present, at the junction of the line of estimation and the contour line. Midway between the two check marks of the line of estimation is the normal point. To the inner side of this point the line is divided into three parts, each part representing one degree of weak foot, while to the outer side of the point the line is also divided into three parts, each part representing one degree of pes cavus.

The use of pedographs in diagnosing and recording weak feet is by no means new. It has been advocated by Rice of Washington and used extensively in the marine corps by Mann and Folsom. However, it has not, as far as I have been able to

learn, been used in the care of children.

With the hopes of standardizing the findings in children, one hundred who were assumed to have normal feet have been pedographed. These children were selected because they had no symptoms referable to foot disturbances. The age of the youngest child was two years and the oldest thirteen. Several were chosen in each year between these limits.

Graphic Records of Progress

From the study of these cases the following facts have been evolved:

(1) Up to four years of age, with few exceptions, the pedograph picture is of no value, as the juvenile fat pad, which is invariably present, always gives a flat impression similar to that present in the third degree weak foot. This flat impression does not represent any pathological change, as it is not due to a flattening of the bony arch. This has been proven by frozen sections of the foot, which have demonstrated that the bony arch is normal and the hollow of it is filled by a pad of fat. However the distance of the scaphoid below the Feiss line, the condition of the musculature and the fat can be determined in these cases. The average distance below the Feiss line for children of these ages was one-eighth of an inch for children two years of age and one-quarter of an inch for those three and four years of age.

(2) The average distance of the scaphoid below the Feiss line in normal children five years of age was one-quarter of an inch. For children six, seven, eight and nine years of age, it was found to be three-eighths of an inch. For children ten, eleven, twelve and thirteen years of age, it was found to be one-half an inch. As a rule variations from these averages indicated abnormal feet.

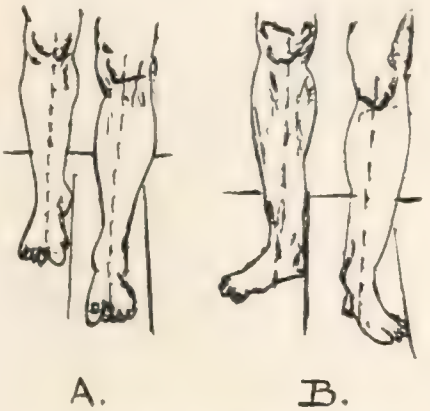
(3) The muscular development was fair in nineteen and good in eighty-one. In the former cases weak feet were invariably found.

(4) The pedograph was normal bilaterally in forty-two cases and unilaterally in thirteen cases. It was abnormal bilaterally in forty-five cases, thirty-three showing weak feet and twelve showing pes cavus. Of the former eleven were apparent weak feet, the weak foot impression being due to juvenile fat pad, and twenty-two were pathological weak feet. Of the thirteen unilateral cases, nine showed weak feet and four showed pes cavus. The weak feet and the pes cavus deformities varied from one-half to three degrees. In weak feet the scaphoid was further below the Feiss line and in pes cavus it was further above than in the normal foot.

(5) The fat pad was especially marked in children up to four years of age. In many of these children it was responsible for the flat impression present.

While this method of recording and diagnosing abnormal foot conditions in children may not be infallible, yet in it we undoubtedly have the foundation upon which we can accurately study successive changes in the foot.

A great deal can be accomplished



The anterior tibial line: (A) Normal; (B) in a case of weak foot. Displacement of this line is a valuable aid to diagnosis of weak feet.

in the prevention of weak feet. The feet of children should be examined as frequently and carefully as the eyes, teeth, heart and lungs. Where there is any suspicion of weakness or a tendency towards weakness proper measures should immediately be instituted.

The feet of small children should not be forced or pressed into shoes. The children should be given frequent opportunities to walk in their bare feet. This allows free action of the muscles and hence strengthens them. Creeping should be encouraged as much as possible. Infants should be placed upon their abdomen as soon as practicable. The desire for locomotion will soon induce children to creep and frequent opportunities will eventually accustom them to this new achievement. The creeping period should not be suppressed. Permitting the child to sit too early will encourage it to slide over the floor on its buttocks. This will delay creeping and should not be permitted.

A good orthopedic shoe. Note the elevation on the inner border of the sole and heel.

The period of creeping should be changed by the child into one of walking. Only when a child of its own accord attempts to stand up and walk, holding to surrounding objects, should it be permitted to do so. To force them to walk prematurely, with the aid of either nurses or walking appliances is objectionable. All such devices are impracticable and unnatural. Hastening the commencement of locomotion predisposes children to weak feet.

Prophylactic Treatment

Regardless of the presence or absence of weak feet, broad-soled sandals for the younger children and good orthopedic shoes for the older ones should always be recommended. These allow of free and unrestricted action of the toes and small muscles of the fore part of the feet.

If very young children proper sandals or shoes will usually suffice to overcome weak feet. The sandals or shoes should have broad toes, they should have a lift of an eighth or one-fourth of an inch on the inner border of the soles and heels. The thickness of the lift depends upon the weakness of the foot. The weaker the foot the thicker the lift. Laced shoes are to be preferred to those that are buttoned.

If after a reasonable length of time the shoes fail to relieve the condition braces must be added to the treatment. The brace which has proved to be very efficient is the Whitman brace. The brace is modeled upon a plaster cast of the foot taken while the foot is held in the fully corrected position. It fits the arch of the foot accurately, extending forward to the ball of the big toe, outward round the outer border of the foot and backward to just in front of the tuberosity of the os calcis. On the inner side it is enlarged upward and extends to a point one-half inch below the internal malleolus. With a properly made brace the foot should rest upon its normal bases of support, i. e., the under surfaces of the heads of the first, fourth, and fifth metatarsal bones and the tuberosity of the os calcis. These braces should be accurately fitted and each should be made for the individual who has to wear them.

The method of taking the cast of the foot which the writer has found very efficient is a very simple one. The patient sits upon a chair with his foot upon a second chair of the same height. On this chair is placed a small cushion covered with a towel

on which talcum powder has been sprinkled. Plaster of Paris is then mixed with water to form a thick cream; a piece of gauze is then steeped in the plaster of Paris cream and laid upon the towel, underneath the foot, so that the outer border of the sole rests upon it along a line about an inch from the edge. The foot rests upon its outer border and is held at a right angle to the leg. The gauze is then wrapped around the foot, covering in the heel behind and extending as far forward as the cleft between the toes; it should reach up above the internal malleolus, but should not overlap the dorsal surface to any extent. This covering is permitted to set and when the plaster is hard there is no difficulty in removing the foot from it. A fresh plaster cream is now made. The mold is well powdered and the plaster cream is poured into it and arranged so that it fills the mold, but does not project beyond it in any direction. When the plaster has set the sides of the mold are forced aside, the cast is removed and properly carved for the instrument maker.

The brace is made of thin steel or aluminum alloy and should extend forward to the line of the metatarsophalangeal joint of the great toe and backward to the center of the heel; on the outer side it grasps the foot just behind the prominence formed by the fifth metatarsal bone and on the inner side of the foot it extends upward to one-half inch below the internal malleolus. It should fit the cast accurately, except over the heel, where it should be slightly flattened so as to make it steadier. It should be worn for short periods at first, the length of time being gradually lengthened as tolerance is established. The length of time the support is necessary varies with the condition of the patient and the strain to which the feet are subjected. The brace should be corrected from time to time so as to conform with the changes taking place under its use.

In older children we have slightly different conditions with which to contend. Pain, rarely present in the younger children, is one of the common complaints of the older ones. For the acute pain strapping offers the quickest relief. One end of a strip of adhesive plaster about seven inches long and one inch wide is applied to the outer side of the ankle just below the external malleolus; the foot is then adducted as far as possible and the plaster drawn tightly beneath the sole up the inner side of the arch and the leg, being kept in this position by one or two strips about the calf. Strips about half an inch wide are then applied in a figure-of-eight manner about the arch and ankle, beginning at the back of the heel and extending as far forward as the base of the first metatarsal bone. Strapping should be done twice a week and continued until the pain has subsided. Where necessary, shoes and braces should be recommended.

Corrective Exercise

When children are old enough exercises have proved valuable adjuncts in obtaining a successful issue. The following exercises have been found to be very efficient:

(1) Tip-toe exercises: the patient places the limbs in the attitude of moderate inward rotation, raises the body on the toes to the extreme limit, the limbs being fully extended at the knees, then sinking slowly, resting the weight on the outer borders of the feet in marked varus, repeating about twenty to thirty times.

(2) Walking in bare feet is very beneficial and should be instituted as soon as the child begins to walk.

(3) Walking on the forepart of the foot.

(4) Grasping motions with the toes combined with exercises with foot weights or marbles are very valuable.

(5) Bicycling has also proved of value and should be highly recommended.

Exercises should be practised twice daily and should not be carried to the extent of tiring the patient.

In the younger children the exercises enumerated can be arranged in the form of games so that they will be more attractive to them.

In a number of instances operative interference is indicated. This is especially so in those cases due to infantile paralysis and congenital deformities.

If after the period of spontaneous recovery has elapsed paralysis of the tibialis anticus has not been overcome, operation may become necessary. The operations which have proved satisfactory are tendon transplantation and tendon fixation. These operative procedures are too well known to require detailed description. Suffice it to say that they should be employed where the indication exists.

Achillotomy followed by proper after measures should be resorted to in those cases in which the tendo Achillis is contracted.

Arthrodesis, removal of a wedge-shaped portion of the tarsus, bone grafts have all been advocated. Fortunately these operative procedures are not commonly required.

Physical Education Association

By DUDLEY B. REED, M.D., President, American Phys ical Education Association, Chicago

THE twenty-ninth annual convention of the American Physical Education association was held in Detroit, May 3, 4, 5 and 6, 1922. In point of attendance it was the largest in the history of the association, eight hundred and ten delegates being registered.

The general theme of the meetings was "The Objectives of Physical Education" and the speakers included a number of well known general educators. Among these was Professor Kilpatrick of Teachers' College, Columbia University, who gave a very stimulating address on the subject "Is Physical Wellbeing the Sole Object of Physical Education?" He pointed out the fact that no educational activity has one result only, giving as an illustration the case of a boy to whom is given the task of learning a poem. He indicated that the memorizing of the poem is far from being the only result of this effort. It also affects the boy's attitude toward poetry in general, his attitude toward school, toward study, toward his teacher, toward authority, and toward society. Moreover, the boy's habits are influenced, his habits of posture and his habits of study among others. Similarly in the activities of physical education, whether we will or no, we shall obtain many results other than the gaining of skill and strength in the particular exercise which is being done, results in habits, attitudes and character. The objectives of physical education should be largely governed by the results which may be attained. Therefore his conclusion was that health is an important objective, but far from the only objective of this branch of education.

Professor Clark W. Hetherington, also of Columbia, made the point that no educator should consider that he is teaching a subject to a child but rather that he is educating the child.

Physical skill, strength and organic vigor are important aims in physical education, but other aims are social and moral qualities which make people better citizens and more useful members of society. These two speakers and Mr. Courtis, the director of public instruction of Michigan, all stressed the importance of cooperation among the different departments.

Throughout the meetings the general feeling was that the physical educator has an exceptional opportunity in promoting health and the other results to be gained by his work on account of the fact that he is supervising children along the lines of their natural interests. He should cooperate to the fullest extent with other agencies striving to promote health. A part of the demonstration of activities by the Detroit school children was an interesting health play.

Those who are engaged in athletic work for girls and women held a session for three hours on Saturday morning and were unanimous in the opinion that girls should not be exploited for purposes of athletic exhibition; that athletics should emphasize participation by all who are physically fit rather than public competition by the most skillful. They were opposed to intercollegiate and interscholastic competitions for girls.

Wins Against Mental Disease

INSANITY has been robbed of many of its terrors. It may be conquered if attacked during its incipient stages. Even the more advanced cases may be arrested if vigorous effective measures are adopted. How this has been demonstrated at the Trenton State Hospital, where epoch making recoveries of insane patients are reported, constitutes the message from Burdette G. Lewis in the April issue of the *Review of Reviews*. As a result of the treatment provided during the last three years one thousand patients in the so-called "incurable" group have been discharged. The discharged rate for the "functional" group has averaged 65 to 70 per cent of the admissions for three years, as against a ten year average of only 37 per cent.

Dr. Henry A. Cotton, medical director of the Trenton State Hospital, in 1918 surprised the medical profession by stating that the extraction of infected teeth, the removal of infected tonsils, and the clearing up of infection in the stomach, duodenum, the lower intestine, and in other vital parts of the bodies of insane patients had resulted in remarkable and unanticipated recoveries. The consistent effort to clear up focal infections of this kind by Dr. John W. Draper, attending surgeon, has achieved results in insane patients which are striking and sensational. The application of all the well tested methods of modern medicine, surgery, and dentistry has penetrated the mystery which has enshrouded the subject of insanity for centuries, and has opened up the way for fundamental changes in the hospital management of insane patients. Typical cases are reported in which after no more radical treatment than the extraction of badly infected teeth has restored supposedly incurably insane patients to mental health and to industrial productivity.

The humane side of the subject can well be appreciated for it connotes the replacement of traditional dungeons or strong rooms and burly keepers with hospital surroundings, nurses, sunlight from expansive windows, and an environment that soothes and quiets the patients. Proper segregation and early treatment mean early recoveries. Removing the terror and torment that afflict the insane patient helps to accomplish the desired result. The newer methods have served to reduce the average stay of recoverable patients in the hospital from nine to three months, and incidentally have made possible an economy to the state that is not to be despised.

All restraining apparatus has been eliminated at the Trenton Hospital, as it has been found unnecessary in handling either new arrivals or the chronic patients. On this subject Mr. Lewis quotes Dr. Cotton as saying:

Even today, at least 80 per cent of all hospitals for the insane throughout the country, continue, to their own shame and to the detriment of the patients, to employ mechanical restraint. There is no necessity for it, as the writer can testify from his own experience. When he took over the State Hospital at Trenton, he found over ninety women in straitjackets, and all other forms of restraint were in daily use. In less than two months over seven hundred pieces of restraint apparatus were removed from the wards, and since that time no patient has been put in restraint for any cause.

The work at Trenton has found striking confirmation in Illinois. The results obtained when shackles are removed are, according to Charles W. Thorn, of Illinois, a challenge to every old fashioned hospital administrator in the land.

The modern room for receiving psychopathic patients at the Trenton, N. J., State Hospital differs in no way from the diagnostic clinic of any other general hospital. It has the advantage of correcting early such physical defects as may cause or aggravate the condition. A mental quirk has a much better chance of being straightened out if the physiologic functions are put in order first.

Two new buildings dedicated to preventive treatment were recently opened at Trenton. Hereafter, alienation is regarded as a symptom, and

every committed person will hereafter be regarded as a patient who is entitled to receive the most complete and expert diagnosis and treatment, corrective and remedial in the effort to remove even remote conditions contributing to the mental upset. Particularly interesting and far reaching in its effects is the research directed toward the ductless glands. Some of these studies have led Dr. Cotton and his associates to the conclusion that bacterial infection of these glands is more serious in its effects in causing the under development or improper functioning of these glands than is commonly supposed. Some of these viewpoints are fundamental in the consideration of mental disorders. The belief that the disorders of these mental patients are fundamentally a disease of the mind, rather than physiologic disturbance of the vital organs, including the brain, has delayed physical treatment and has seriously retarded progress in this group of diseases.

Where accuracy triumphs over guesswork. Where accurate study is made of each disease picture presented, precise methods become impossible. The procedure in this case is the administration of salvarsanized serum through an opening in the skull.

Cities and states throughout the Nation which are contemplating the expenditure of millions for custodial asylums need to consider the matter of diagnostic and medical survey of committed patients in its bearing upon the economic and humanitarian handling of these subjects. New Jersey's experience has made the old fashioned asylums, camouflaged as hospitals, as extinct and out of date as are the prison grottos of old Venice, or the Bethlehem hospital for the Insane in England, known as "Bedlam" which was so notorious that the word "bedlam" now signifies fury, confusion, and misery beyond words. There were actually fifty-five fewer non-paying patients in the Hospital July 1, 1921, than on July 1, 1918 alone effecting a saving of $116,000 in maintenance charges the past year. Moreover, voluntary patients have paid more than $50,000 for treatment during the same period. Taxpayers should be brought to realize that they pay the staggering sum of ten thousand dollars for each indigent case committed for life. Under the old system two-thirds of all commitments are for life, and insanity has quadrupled while the general population has doubled! In New Jersey alone an extension of the extraordinary results herein reported would mean that there will be no necessity of building an addition each three years to care for 324 additional custodial patients "in for life," and that a large part of the old asylum section of the Trenton Hospital, upon which more than two million dollars had been spent in recent years, can be abandoned before long or converted to other uses.

Health Week Announced for October

The week of October 23 to 30 has been set apart as "Health Week," with the suggestion that emphasis be placed on ventilation, sanitation, and personal hygiene. It is significant that improvement in health conditions has been effective on just the points where the attention has been focused and in the degree that personal and community responsibility has been assumed. Health week is set at an opportune time, when especial attention is necessary to provide healthful indoor conditions.

Many "weeks" devoted to one cause or another have resulted in tremendous activation in these several fields. When universities and colleges found themselves obliged greatly to increase their funds or reduce standards they put their case up to the people in educational drives that resulted not only in financial stability for these organizations, but found their best expression in an enlightened public inquiry into educational methods of the most far reaching importance. Thrift week put unprecedented sums of money in the banks, instituted many systematic investments, and excited an unprecedented interest in the underlying causes for economic stress. It stabilized the sense of personal responsibility.

It is interesting to speculate on the possibilities of "Health Week" properly organized and sufficiently backed by popular interest. That health is an asset really calls for no argumentation. Everyone desires health for himself and regards it as a blessing when it is bestowed upon him. The chief difficulty is that health is popularly regarded as a gift, not as an achievement. Supine, lackadaisical acceptance of conditions conducive to ill health and inefficiency are quickly dissipated when health facts are properly presented. With the present state of sanitary science there is no excuse for the popular notion that sickness "happens." Sickness and inefficiency are not chance products any more than health is a "gift." The laws of cause and effect apply, and it is up to an enlightened public to understand and provide the physical conditions productive of public health.

Physiological righteousness is the price of health. Personal hygiene, a definite application of the laws of dietary knowledge, the opening of our windows, cleaning up our backyards, straightening out defective plumbing, removing poisonous gases in industrial plants, care as to water supplies and sewage disposal, rational ventilation in the home, personal hygienic practice—all are proper subjects for emphasis in "Health Week." If health workers seize the opportunity to organize and popularize some of the more recent findings of research workers on ventilation, on the sanitation of the home, and of the cooperation necessary from the individual to maintain community as well as personal health, the observance of "Health Week" should result in a better popular support for a rational public health program.

Acute Infectious Diseases in New York City

Two Decades of Inspection from the Standpoint of the Medical Inspector

By JOHN RANDOLPH GRAHAM, M.D., Borough Diagnostician, Bureau Preventable Diseases, Department of Health, New York City.

THE doctor in the Health Department is sometimes asked this question, "What possible attraction is there in your work which can induce a physician with a reasonable amount of ambition to devote to it a good share of the best years of his life?" Speaking from the point of view of one who for a great many years has been engaged in the inspection and diagnosis of acute infectious diseases, it can be answered that, aside from the material benefits which may accrue to the inspector as a result of his labor, the Department of Health offers the man for whom infectious diseases in general and the eruptive diseases in particular hold a fascination a service always rich in opportunity, a wealth of material, and an experience which seldom grows stale. True it is, the doing of this work involves at times both annoyances and hardship, but such things are more than counterbalanced by the compelling interest most of us feel in the wonderful variety of things we are forever doing and seeing and in the numberless incidents, grave and gay, which befall us from time to time. Doubtless every medical inspector has gone home on more than one night calling upon all the Saints to witness that he was through, that never again would he submit to the inhuman and indecent treatment which was his daily portion, only to arise with the light of another sun and take up his stride where he left it the evening before.

To the medical inspector in New York City is given the opportunity not only to study an unusual variety of communicable diseases but to him is given first hand knowledge of human nature in all its moods.

The duties of the medical inspector of the old days who was on call at any time to calm irate citizens, enforce quarantine rules on recalcitrant tenement dwellers, and vaccinate grumbling flop house inmates are quite different from those of the present day diagnostician under whose surveillance comes a whole troop of infectious diseases, some exceedingly rare. Like the stage and the newspaper, medical inspection holds a never ending fascination for the physician thus engaged.

Old Time Medical Inspection

The methods of handling the acute infectious diseases in the field have undergone many modifications in the last twenty years, and in consequence the present day inspector has a decidedly happier lot than did his predecessor of the former day. In the early years of this period, the work was looked after by two varieties of the genus medical inspector, namely, the diagnostician and the district inspector. With the diagnostician of that date, this paper has little to do, and it suffices to say that he was looked upon by his more humble accomplice as a kind of medical highbrow who did most efficiently the work called for by the title he bore. On the other hand the district *man* was the handy man of the Department, the "hewer of wood and drawer of water," and his duties were multifarious. There came to his hand every conceivable kind of complaint originating in his district from the perfectly legitimate request that he investigate some breach of quarantine to the wherefore of the dead cat on the sidewalk, He attempted with varying degrees of success to calm down citizens who were angry as a result of some injustice or indignity which had been foisted upon them which, incidentally, had not of necessity the remotest connection with the Department. Upon the district inspectors' shoulders there rested the special responsibility of establishing, maintaining and terminating quarantine in every case of infectious disease regardless of its importance. To let memory dwell on the weary daily grind produces even now a most unpleasant taste in one's mouth, for the carrying out of the countless details considered essential to the proper surveillance of infection at that time necessitated from six to fifty calls a day, depending upon the season, in a district of considerable size. In this connection, it should be remarked that there is a tradition firmly planted in the mind of the medical inspector that infectious diseases show a marked affinity for the child whose habitat is the top floor of a lofty tenement.

In addition to his more or less legitimate tasks, there were all kinds of odd jobs, outside his regular sphere, which the inspector was called upon to perform, and irritating to the last degree were the frequent and peremptory orders 'phoned him at any and all times, and for little reason, to report forthwith at Headquarters. There was in fact no noticeable disposition on the part of the powers regnant to realize that we could not live on our meager salary alone and that we must needs bolster up our income by further sweatings of the brow in other fields of medical endeavor. Truly the forty hour week with Saturdays, Sundays, and holidays free had not been thought of in that benighted age, but had any one proposed such a progressive measure, it seems certain that it would have carried unanimously!

Diagnostician's Office Created

Less than a dozen years back, there appeared on the scene a new member of the medical inspector family, the district diagnostician attached to the Bureau of Preventable Diseases. He is a by-product of one of our periods of reorganization and includes in the scope of his operations a few of the functions of the former district medical inspector and most of those of the former diagnostician, both of whom he has superseded. At the time of his induction into office, the multiplicity of irritating jobs which had until now sorely vexed the soul of the district inspector, were passed along to that hard working, capable, and invaluable departmental ally, the field nurse. Now if the nurse feels badly about it, she has so far, with the patience characteristic of her kind and in decided contrast to that representative of the male persuasion from

whom she inherited her troubles, refrained from becoming vocal.

Relieved of so many hindrances to his peace of mind the diagnostician responds each day to numerous requests for diagnosis in puzzling cases of infectious disease and, when necessary or advisable he has the infected patient removed to one of our hospitals caring for such conditions: when asked, he immunizes against diphtheria, typhoid fever, and tetanus; he vaccinates contacts and near contacts to smallpox and keeps exposed individuals under observation during the incubation period of the disease; he looks up certain special complaints and likewise tries, as did his predecessor, to soothe the ruffled spirits of harried citizens. A busy official, certainly, but the present day authorities apparently allow for the fact that a man, even though a department employee, has a right to live. Consequently, if he performs his duties properly he gets no preemptory orders to report, nor does he, except in emergencies, have to anticipate calls on his time outside of his regular work. One may deduce, though, from the synopsis of official duties detailed in the preceding paragraphs that for the district diagnostican or his forerunners in office to do conscientious work for the city and, at the same time attend to the demands of private practice, requires a speed of foot, an agility in climbing stairs, and a degree of all round hustling which is entirely beyond the ken of the average man.

Let us delve again for a moment into the past and speak of a form of departmental activity without mention of which no account of the work twelve to fifteen and more years ago would be complete. I refer to a specially obnoxious form of nightmare known as the smallpox vaccination raid on lodging houses, a procedure now a little out of fashion, but with a threat of its revival in some form always with us. The method of conducting these raids was simple and to the point. The inspectorial body foregathered at headquarters about two a. m. There each individual inspector obtained his vaccination supplies, was assigned to a lodging house, and having been allotted a police officer, went to his appointed, place, usually on the Bowery.

To the policeman fell the honor of heralding our arrival which he always did in approved style by hammering violently with his night stick on the floor of the dormitory and yelling in stentorian tones "All up to be vaccinated." And they got up too and were vaccinated one and all, without regard to race, color, creed or previous condition of servitude, and in spite of fervent pleas for exemption based on every imaginable ground. These outings, needless to say, were not popular with us, and certainly the *hoi polloi* as represented by the guests at these hostleries gave no marked evidence of joy over this practical application of preventive medicine to their persons. In truth, it is not too much to say that the looks with which they transfixed us, the muttered imprecations, nay, more, the loud voiced maledictions hurled forth by some of our victims, inspired us with one desire, to depart with all celerity. In seriousness, it should be added that in face of conditions existing at that time, these raids, if unusual, were necessary and effective measures in the campaign against smallpox.

Sees Wide Range of Diseases

It is to be doubted if the medical profession at large has any conception of how many cases of infectious disease pass in review before the eye of the diagnostician, nor of what a wide and striking range of eruptions he encounters in his day's work. Not long since, for example, one of our doctors saw in a single day a very severe case of varicella in an adult (reported by the way, as smallpox), a case of endemic typhus, one of anthrax, an atypical attack of scarlet fever, and a wonderful exhibit of that form of skin disease known as Herpes Iris. Such a variety of assignments is not at all exceptional. In a service of even moderate length the diagnostician will see scarlet fever, measles, rubella, diphtheria, and varicella in immense numbers, and will become familiar with the characteristic features of variola, acute anterior poliomyelitis, meningitis (both the epidemic and tuberculous forms), and to a less extent of anthrax, endemic typhus fever, tetanus, and leprosy. The rarer types of infection cross our paths at intervals, among them that terrible disease, hydrophobia, which be it said in spite of many a doubting Thomas within and without the profession, is a distinct clinical entity, and once seen, is apt to be ever afterward recalled with a shudder.

In addition to this impressive array of infectious diseases, we meet innumerable cases of the non infectious dermatological conditions, and especially common are the eruptions due to intestinal toxemias or to drugs which can be conveniently classed under those terms which are very dear to the heart of the diagnostician and which likewise may cover a multitude of sins, erythema multiforme and toxic dermatitis. As for the rashes which show a deviation from the accepted or text book type, their name is legion, and no sooner does one arrive at that contented state of mind wherein he feels that there is nothing more to learn about eruptions than a mysterious stranger appears to plague and puzzle him for a while, perhaps forever. The shelves of memory are well stocked with such instances and we really come to feel at times that so far as the exanthemata are concerned, there is no such thing as a consistent, dependable clinical picture. Surely, the zest and spice which variety adds to everything is found here in superabundance and most of us, even after years of this sort of toil, own up to a pleasant sense of anticipation as we approach a new case for diagnosis.

Do we make mistakes, does someone ask? We do. We admit it unblushingly, but while thus admitting it, we hear with amazement, and with amusement too, of that medical phenomenon who never makes an error in his diagnosis of eruptive diseases. The infallible diagnostician in this line of work exists only in fevered imaginations.

A glance backward through the years of the twentieth century already gone brings to mind some events which are of special interest to the epidemiologist. There was the smallpox epidemic of 1900-1902, a stubborn hard-fought affair which was finally controlled by a far reaching vaccination campaign carefully planned by our health authorities and systematically carried out by the inspectors. The infantile paralysis epidemic of 1916 was not impressive from the standpoint of numbers attacked, but the unprecedented mortality, the large proportion of permanent deformities which persisted in those who survived, and the atmosphere surcharged with terror which surrounded the houses in which there were children made it a memorable time for all who participated in that long summer's fight. The influenza epidemic of 1918-19, the greatest of all our scourges, with the recurrence of the disease in modified form the following winter is too recent a happening to call for special comment. In addition to these formidable outbreaks, there was an alarming flare-up of epidemic cerebrospinal meningitis in 1903-04, another of acute anterior polomyelitis in 1909, not so severe

nor so well remembered as its more famous successor, and in other years we have experienced serious increases in the incidence of scarlet fever, diphtheria, and measles. It has of course been principally on the practical workers in the field, both male and female, that the heaviest task of handling these much dreaded visitations has fallen, and it is only just to say that with rare exceptions they always respond to the call of the emergency with fine spirit and with a most commendable intentness of purpose.

Medical Discoveries

In this period, too, we have seen diphtheria antitoxin which, strange to say, was regarded twenty years ago still with considerable misgivings, achieve its deserved place in lay as well as medical opinion as one of our most valuable curative and preventive agents. And we have seen brought forward two epoch making discoveries in the field of preventive medicine. The anti-typhoid vaccine we have helped to popularize in this community, and so commonly is it used nowadays that it is hard to realize that it came to our knowledge but a few short years ago. A still more recent addition to our armamentarium is the so called Schick test for determining the presence or absence in the individual of immunity against diphtheria. This procedure is now just at the threshold of its usefulness, but it is not difficult to foresee that in conjunction with the toxin-antitoxin mixture, it may very well in future years put a new aspect upon the diphtheria problem.

On the other hand, we have witnessed within the last decade the passing together with the bag of asafetida carried around the school child's neck, of another relic of a superstitious age, namely, routine fumigation as a terminal procedure in the handling of a case of infectious disease. No one will deny, of course, that fumigation has its important place in preventive medicine, but in this particular phase of the subject, for a most unpleasant smell at the conclusion of the attack we have substituted firm insistance on fresh air and cleanliness throughout the duration of the disease, with a thorough cleaning of the sickroom upon the recovery of the patient. The wisdom of this move is clearly reflected in the improved statistics bearing on secondary cases.

It seems unfortunate that the many new discoveries in medicine of late years have not been of a kind to make the work of diagnosing eruptive diseases any easier. It is a fact that the diagnostician has to depend now as in the past on a good pair of eyes, a well balanced judgment, and particularly on common sense as the most important aids to the proper performance of his duties.

Comedy Element Present

It has been aptly said that for a medical inspector of this Health Department to do his work efficiently, he should be able to talk and also to gesture in about thirty different langauges. It is often most exasperating to try to obtain needed information from our foreign born population, but still more often it is highly amusing. It has many times occurred to the writer that could a comedian, say of Weber-Fieldian type, accompany him on his daily rounds, the said comedian would obtain fine material from which to furnish side splitting entertainment. An incident occurred about ten years ago, which was excruciatingly funny in its original setting. The story loses much in the telling, and it is related here more to give an idea of the hopelessly blank wall we often strike when looking for light than as an example of the humorous. A public spirited denizen of the East Side sent a communication to the Department, neglecting of course the little formality of signing his name, in which he expressed the opinion that it was an outrage that a leper was allowed to remain in a Chinese laundry on Rivington Street. Although there was probably no one in the city at the time who knew any less about leprosy than did the diagnostician to whom the complaint was assigned, there was no avoiding the responsibility for investigating the case. On reaching the laundry complained of, he observed two Chinamen working at ironing boards in a front room and on a box placed in a doorway leading into a back room sat a third Chinaman, dreamily smoking a pipe. To the query "where is the sick man?" the reply came from a nearby laundry man "nobody *sick*, no understand English," the character of which reply as a whole being such as to make the verity of any portion of it at least subject to scrutiny. Having thus replied, however, no one paid any further attention to the person or questions of the visitor. After wasting much time and more language in a vain attempt to establish an *entente cordiale* the diagnostician changed his strategy and adopted a new method of approach. Pinning his badge on the lapel of his coat, he sternly demanded of the Celestial nearest him. "What is your name?" Evidently impressed at last by the glint of the badge, he promptly replied "Me? Me Hop Lee." Somewhat encouraged, our friend again asked, "Well, who is the fellow over at that other board?" "Him?" replied the Chinaman, "he Hop Lee." Satisfied now that his questions were really getting him somewhere the Health Officer finally inquired, "And who is that smoking the pipe?" "Him?" came the answer, "he Hop Lee too, allee samee Hop Lee." Having so freely tapped this clear spring of information, the diagnostician withdrew from the laundry for the purpose of searching for a policeman who in addition to his other accomplishments, might talk Chinese. In this quest he was not altogether successful, but he did find a husky gentleman of Hibernian descent who knew how to make these Chinamen display a perfect working knowledge of the intricacies of our Mother tongue, and after the whole company had communed together most affably for an hour or more, it was unanimously agreed that nobody had leprosy!

Punitive Measures Necessary

That our quarantine regulations may not be made sport of, the Department finds it necessary from time to time to resort to disciplinary moves. One of our repressive measures which is always regarded by the citizen as a very potent *casus belli* is the forcible removal to the hospital of a patient suffering from an infectious disease because of inability to isolate properly or wilful indisposition to do so. The carrying out of this punitive act may on occasion result in a serious threat against the integrity of the limb and sometimes even the life of the medical inspector. To cite a case in point.

Sometime ago a child ill with scarlet fever was domiciled on the sixth and top floor of a Clinton Street tenement. The inspector in whose bailiwick stood this building was much peeved in spirit by the persistence and reckless abandon with which the mother of the child in question broke each and every rule of quarantine and gloried in the pastime. An early visit found the boy playing in the hallway, and the mother was warned of judgment to come. Another visit located the patient in an adjoining flat, mingling with some perfectly sound children. This violation of Department rules necessitated a call from the Health Squad policeman who advised the family,

with emphasis, to walk the straight and narrow road. A third visit disclosed the fact that the ubiquitous youngster was taking the air on Delancy Street. This was too much and there promptly ensued a forcible and likewise, according to reliable eye witnesses, a very tumultuous removal to the hospital.

The following day, as per custom, the medical inspector hied him to the premises for the purpose of looking over the disinfection. As he tells it, he magnanimously agreed with himself that he would not rub it in on these unfortunate people, but would be content with scattering around a few burning thoughts touching on the value of living up to the rules. So carefree and light of heart, he blithely began to ascend the stairs. At about the first landing, he noted the hum of distant conversation wafted down from above, but such hums being the rule in those parts, this particular hum attracted no special attention. As he mounted higher, however, the increase in volume of the conversational murmur carried with it the assurance that a matter of no mere passing importance was the subject of discussion further up. Entirely unconscious that he was in anyway connected with what was going forward, he attempted to negotiate the final flight of stairs. As he hove into the field of vision of the moderator of the town meeting which was being held on the top landing, a fearsome shriek greeted his ears,—a shriek in which the elements of ordinary rage, righteous indignation, and vengeance were clearly distinguishable. Immediately and with whirlwind velocity there descended upon him a feminine avalanche composed of the mother, relatives, and friends of the incarcerated boy, gathered from near and far against the hoped for coming of the "Board of Health." The startled inspector took one quick glance at the approaching menace, and rapidly overhauling the old adage that "discretion is the better part of valor," abruptly reversed his line of march and went away. To say simply that he *went* away, exhibits an extraordinary moderation in the use of the words to picture the manner of this ignominious debacle. The doctor avers with much feeling that he still is and ever expects to be most grateful that his long practice in the gentle art of going down dark, precipitous, and winding staircases at full speed without breaking his neck enabled him in this crisis to emerge from the stoop door triumphant and unscathed as to person, though much damaged as to pride, a full length ahead of the madding crowd. Need it be added that the environs of Clinton Street knew him no more until these storm clouds had blown away?

Even Strikebreakers Once

There have been times, too, of a sort to try men's souls, many of them, and chiefest among them all I would place a long summer evening in the distant past. Late in the afternoon we had received that order, the *bête noir* of the medical inspector, to hurry to headquarters, and having hurried we were sent *en masse* to Willard Park Hospital at 16th Street and East River. No explanations were forthcoming, but inasmuch as there was a street cleaners strike on at the time and as the stables of the street cleaning department were next door to the hospital, I believe that each of us had a premonition that all was not well. When, however, we finally learned what was planned for us, the most hardened veteran with a nervous system inured through many weird experiences to every form of shock known to science owned up to a feeling of unrest in the gastric region, while those of us who were not veterans were just plain scared to death. It appeared that it had been decreed that we should finish our several careers in the performance of the all-glorious and inspiring task of helping to break the street cleaners strike! We were not to drive a cart, nor indeed were we to hoist the contents of garbage cans aboard; all we had to do was to saunter along behind the cart from the source of supply to its destination, the dump, and this if you please between twelve midnight and daybreak. Had it not been for that pride of race indigenous to most humans, and the dislike one feels to listening to opprobrious remarks from fellow man in which the word yellow predominates, every one of us would have quit right there, without standing upon the order of our going. If any reader is unfamiliar with nocturnal conditions in that section of our city colloquially known as the Gas house district, let him take the word of one who knows that the atmosphere there at best is not salubrious. On the night in question it was actively contaminated. The gentle hints dropped in our ears by the pickets infesting the neighborhood regarding certain replacements which were due the following morning in the personnel of the Department were not cheering; and the well founded rumor that the tenements and housetops along Avenue C were stocked with cobble stones, brick bats, clubs, and other missiles and implements of assault hard and rough, lent a sinister tinge to the heads which appeared at the windows and the faces which now and then peered over the coping of the roofs.

Experience that night, together with much more picked up in years of this service, demonstrated very satisfactorily that things in reality are never as bad as they are in anticipation. The *dénouement* in this case was as sudden as it was unexpected. Just before midnight when things around us were becoming unpleasantly active, the absolute silence which had until now pervaded the interior of the stables where the strike breaking drivers were assembled for safekeeping was suddenly replaced by a violent and noisy outbreak; the doors of the stable burst open and there erupted with a wild yell a compact mass of about a half hundred of our prospective associates. Enveloped in dust and darkness they quickly vanished in the general direction of 23rd Street and Avenue A followed by a shower of heartfelt benedictions from a most relieved body of medical inspectors. So happily ended our first and, so far, our last assignment to strike breaking duty. And so it goes from day to day.

It has been possible in the limits of this paper to give little more than a snapshot at a very big subject. The writer has, however, endeavored to demonstrate that the life of the Department of Health physician, so employed, is not a humdrum affair, but is on the contrary full of variety and action; that he frequently encounters those rare conditions in the field of infectious diseases which may easily escape the notice of his professional brother outside in long years of practice; and, finally, that if he has his heart in his work and is possessed of even a moderate sense of humor he is well repaid for his arduous labor, by the interesting, valuable and ofttimes amusing experience acquired as he goes about his work.

Speech Training for Soldiers

Under the reorganization of the Rehabilitation Division, U. S. Veterans' Bureau, Washington, D. C., the training of ex-service men with defects of speech and hearing has been placed under the direction of Mr. Arthur Holmes, supervisor for the blind. The central office regional representatives for the blind will supervise the training of the deaf and those having speech defects as well.

Dyestuffs and Disease

By Our London Correspondent

WHAT intoxications resulting from infective processes are probably responsible, directly or indirectly, for nine-tenths of the suffering and misery consequent upon the ravages of disease was the thesis of a paper jointly presented by Dr. Arnold Renshaw and Thomas H. Fairbrother, M.Sc., before the recent meeting of the Society of Chemical Industry held in Manchester. Thus, the greater proportion of heart and lung diseases are bacterial in origin. Rheumatism is due to a toxin derived from organisms growing, it may be, in remote organs; peritonitis, pleurisy, meningitis, present a definite bacteriology. When, however, disease is recognized by its cause rather than by the organs affected, then the truth of the statement becomes clearer. Thus streptococci for instance, can produce inflammations of many organs. The infective diseases could be classified roughly into:

(1) Those with unknown infective origin, such as chickenpox, measles and scarlet fever.

(2) Parasitic infections, by the Protozoa, causing such diseases as malaria, sleeping sickness, or dysentery, and the Metazoa, such as flukes, filaria, and worms.

(3) Bacterial and fungal diseases, such as actinomycosis, anthrax, diphtheria, tuberculosis, "septic infections," typhoid, and many others. In all, some fifty specific diseases were mentioned, of these the causative agents were not yet discovered, in twelve of the remaining thirty-eight a partial successful curative agent was available, in ten. There are thus twenty-eight diseases in which the causative agent was known in which there was as yet no "direct attack" method of treatment. To these must be added the twelve diseases of unknown causation, since they are known to be infective.

There were, therefore, forty important diseases for which it could be truthfully said that no real curative agent exists apart from the body resistances. When a person became ill it was by the toxins resulting from the rapid proliferation in the blood or tissues of the bacteria or parasites responsible for the attack. In the case of a bacterium each microbe could be potentially divided under favorable conditions every twenty minutes, so that from a single bacillus within twenty-four hours many millions could be obtained. At the same time the body tissues were producing specific antibodies which tended to kill off that one type of organism and that one type only. After an attack, the blood was richer in these antibody substances, hence the immunity for a time from further infection. It was hoped to prepare in the laboratory, possibly on a much coarser scale, chemical substances which should have a similar direct action on infecting agents. These substances must not be harmful to the patient, although highly lethal to the infective agent. Ehrlich has expressed this in a flash of genius in the words "parasitotropic but not organotropic." When an infection occurred these possibilities arose: (1) The organism was rapidly killed off by the chemical antibodies and cells in the blood; (2) the organism killed the patient; or (3) a gradual balance was established in which the infection became localized, but from time to time the body became flooded with the toxins, causing chronic ill-health. There were two methods of fighting such an infection: (1) by coaxing the body itself to fight the infection by means of rest, with warmth, etc.; (2) by injecting into the blood chemical substances having a chemical affinity for the infecting agent, which could kill that agent quickly and cleanly without harming the tissues and organs of the body.

The present work, the authors explained, had been a study of these chemical affinities—fourteen of the commoner organisms had been employed in work and certain Protozoa. These were: B. phloci, B. subtilis, B. anthracis, B. diphtheriae, Streptococcus, Staphylococcus, B. coli, B. dysenteriae (Shiga, Flexner and Gaertner), B. typhosus, B. paratyphosis, A. B. paratyphosus, BB. Lactic of the Protozoa. An actively mobile paramoecium was used and occasionally certain flagellates. These organisms had been tested with different dilutions of the various dyes used. As a result a mass of useful information had accumulated, some of which would probably be of immediate application, some of which would require further development before final application could be made. Certain dyes showed a selective action which would be useful.

Thus, one of the difficulties associated with the activated sludge process of sewage purification lay in the fact that the Protozoa after a time increase too rapidly in numbers and, presumably, eat up the bacteria responsible for the purification process. Several dyes had been discovered which would kill the Protozoa in high dilution, without harming the bacteria. As an example of the way in which the knowledge now gained can be utilized, an interesting experiment was quoted. The authors wished to test certain dyes on the worms present in the blood of a patient suffering from bilharziasis, a tropical disease of West Africa for which no cure exists. They were put in touch with two cases who presented themselves for examination. The first patient was examined and his blood was found to contain the tiny moving worms present in the blood in this condition. A solution of a dye was made and mixed with the patient's blood until a dilution of one in four thousand resulted. The blood was again examined and the Filaria were seen to be still moving, but within five minutes of mixing the dye with the blood they became dead. The whole experiment had taken up but fifteen minutes to complete and within this time the patient had the satisfaction of knowing that at least one substance existed which had a lethal action on his parasites. It is believed that this drug may possibly be administered intravenously. Similarly, some of the more powerful dyes are being tested out as antiseptics now on the human being in regard to suppuration in the nose and in the eye, and arrangements are being made for their action in cases of gonorrhea. In this work eminent surgeons are collaborating—animal experiments are also being conducted to ascertain which of these dyes may be given intravenously. In regard to syphilis, Ehrlich had produced a substance, salvarsan and neosalvarsan, for the treatment of this disease. The authors had tested neo-salvarsan in a dilution of one in two hundred against one of their test Protozoa and found them to be alive even after two hours immersion in this solution. They have obtained dyes which killed this same test agent in a dilution of one in two thousand instantly and one in twenty-thousand within fifteen minutes. Mixtures of dyes had been tested and even the range had been increased, action being observed up to a dilution of one in eighty thousand instantly and up to one in a hundred and sixty thousand within fifteen minutes.

In addition to these chemical applications and to the sewage application there are possibilities of antiseptic action, these substances being employed in connection with certain foods and beverages such as milk. With respect to the purely chemical

side of the subject, the central idea which the authors had kept in mind had been the actual part played by different chemical groups in antiseptic action among the various classes of coal-tar dyes. The work done has covered broadly the whole range of coal-tar colors and antiseptic action has been studied in the following classes of dyes:—Azo class, triphenyl methane class, phthaleins or pyronins, azarins, including oxazine, safframines, thiazines, eurhodines, acridince, in short all the dye classes whose members are water-soluble. Representative members of each class have been studied in their action on fourteen common organisms and also in their action on living Protozoa.

The results show that there are certain classes which have a greater or less tendency to antiseptic action, such as the triphenylmethane class, the safranine class, and acridin class. The azo class as a whole showed very little antiseptic action. In each group there is an internal variation of antiseptic action, which action can be controlled by varying substituent groups in the type molecule. Then in the triphenylmethane class certain strongly basic dyes, such as crystal violet and cyramine, etc., showed very strong antiseptic action, whereas others, such as the patent blues, acid greens, turquoise blue and Victoria blues showed very little action. This is due to the fact that in the latter type different groups are on the nucleus, which removes the antiseptic properties manifested by crystal violet itself. The experimental work has revealed the fact that certain dyes have a definite selective action and attack some organisms and leave others alone.

This is extremely important as it opens up a field of work which should result in the fixing of certain dyes for certain organisms, and one can find which substance may be most suitable for a disease brought about by definite organisms. Certain other dyes exhibited a selective action between Protozoa and bacteria, and kill the former, but do not injure the latter. This also is important for such operations as require the partial sterilization of a mixture of bacteria and Protozoa, as in sewage treatment. The authors point out that while chemical constitution undoubtedly plays a big part in antiseptic action, and while the presence of certain groups in the molecule can prevent antiseptic action being shown, there are probably other factors to be considered as well. Most of the dyes showing antiseptic action diffuse rapidly through parchment and belong to the class of substance known as molecular dispersoids, whereas, those which do not, show much antiseptic action form jellies or colloidal solutions. It is possible that the rate of diffusion of the dyestuff into the cell membranes has much to do with the problem and the choice of antiseptics must be governed by these considerations. Another point of considerable moment established by the authors is that where a dyestuff exhibits antiseptic properties, these properties can be augmented by the introduction of a metallic salt of the same acid as the dyestuff into the molecule of the dyestuff as a double salt. Thus the double salt of zinc chlorid and crystal violet chlorid is a more powerful antiseptic than either crystal violet chlorid itself or zinc chlorid itself.

In commenting on the original piece of research work it may be said that it has been predicted more than once within recent years, that most diseases have a chemical origin and that therefore their rational treatment is by chemicals. Treatment by colloidal therapy, which has met with a good deal of success, is a step in this direction. The coal-tar dyes have long been known to possess certain therapeutic virtues, and it has been held, or rather suggested, by some that some dyestuffs in dilution have strong antiseptic properties and are able to destroy bacteria, Protozoa, parasitic, and fungal diseases, indeed the causative agents of any of the infective maladies. Dr. Renshaw and Mr. Fairbrother have been investigating along these lines for some time and many speculations, too optimistic for the most part, have been advanced as to the results of these investigations.

Although the speculations of their friends were too rosy, it will be gathered from their paper that they have discovered that it is the property of certain dyestuffs, when in high dilution, to kill speedily the Protozoa or parasites in syphilis, filariasis, and diseases of a like nature. At any rate, this is a progressive movement and augurs well for the future of the dyestuffs as a means both of preventing and treating diseases of an infective character. Of course, all the work done up to the present time has been experimental, and much further work will be necessary before dyestuffs can be confidently used as a preventive or curative agent. However, as said before, sufficient has been done already to encourage high hopes in dyestuff therapy.

City and World Health

A CANVASS recently made of the doctors in the city of New York in an effort to further the movement to coordinate existing medical institutions and organizations and to enlarge their clinical facilities was the subject of recent editorial comment in the New York *Times*. The object of the survey is not only to get rid of duplication and to make more effective the work of the hospitals, but also to attract graduates of medical colleges throughout this country and even physicians from other parts of the world. The great medical colleges of Columbia, Cornell, and New York University, the Long Island College Hospital, and the New York Post-Graduate Medical School are all represented in the Board of Directors of the Association for Medical Education.

The *Times* comments thus on the situation:

"When we were asked by the League of Nations to participate in a conference of its International Health Section called especially to standardize antitoxic serums for fighting certain diseases the earth around, it was understood that the invitation to our Government suffered the fate of the earlier communications from the League of Nations. But this invitation finally reached a Federal health official, who caused a delegate to be sent to this conference. This representative had to be careful, however, to make clear and emphatic that his presence in no way associated our Government with the League of Nations. He participated, nevertheless, in the deliberations, with the result that in the allocation of serums to the laboratories of the several participating countries for special study and standardization two (those of tetanus and diphtheria) were assigned to the United States."

Now, is there any good reason, asks the *Times*, why we should not send official representatives instead of "unofficial" delegates or "observers" or circumlocutory spokesmen to this and other like humanitarian conferences, even though they were created or adopted by the League of Nations? Should not Congress be asked to make it possible for the United States to join in these humanitarian efforts directed against the menaces of disease and other enemies of mankind that

Ontario Health Resorts

By JOHN W. S. M3CULLOUGH, M.D., D.P.H., Chief Officer of Health, Provincial Board of Health, Toronto, Ont., Canada.

THE chief Summer resorts of Ontario are found in five regions, (1) the Rideau Lakes, extending from the neighborhood of Kingston to near Ottawa; (2) the Thousand Islands at the head of the St. Lawrence; (3) the Kawartha Lakes in the central portion of Ontario; (4) Algonquin Park, a great natural preserve in the central northern portion of the Province; and (5) the Muskoka Lakes and Georgian Bay regions.

Boats plying upon the waters adjacent to summer resorts are required to provide tankage for their sewage, in which the contents are subjected to sterilizing treatment by live steam for one hour and then dumped at a safe distance from any wharf or place of residence.

All of these resorts are very attractive and efforts are made by the Provincial Board of Health to improve and maintain the local sanitary conditions, particularly in respect to water supplies and the disposal of sewage.

It is an offense under the laws of Ontario to discharge garbage, excreta, manure, vegetable or animal matter into any of the lakes, streams, rivers or other waters, or to deposit any of these materials on the shores or banks of these waters. Owners or officers of all boats plying upon these waters are forbidden to discharge any of these materials into the waters.

All Summer resorts are inspected by the officers of the Board early each season, and under the law the Board has extensive powers whereby purification of public water supplies and treatment of sewage may be enforced. The boats plying upon the waters adjacent to Summer resorts are required to provide tankage for their sewage in which the contents are subjected to treatment by live steam for one hour. The contents so sterilized are then dumped at a safe distance from any wharf or place of residence. In addition to the regular inspection the District Officer makes frequent return visits during the season to check up any improvements ordered by him.

As a result of these careful and systematic inspections which have been carried on during the last twelve years, substantial improvements in sanitation have been secured. In general, the water supplies may be considered safe, the disposal of sewage is in the very great majority of cases adequate and satisfactory; there are few mosquitoes during the Summer resort season and where any at all are found they are considered innocuous so far as disease is concerned. In some places there are too many flies, but proprietors of hotels are learning that it pays them to take measures of protection against the fly nuisance and the result has been to a great extent the absence of the manure pile.

The weakest point about these resorts is the milk supply which, in some quarters, is not pasteurized. We hope soon to educate all the keepers of health resorts in the value of this measure.

The Board does not know of a single case of typhoid developed in an Ontario health resort last season.

Organize Illness Prevention Service

A community experiment started with an anonymous gift of ten thousand dollars, which fund is to be augmented by membership fees of six dollars per person per year, is being conducted through the organization of the Manhattanville Health Society. Residents to the number of about 73,000 have organized to purchase an illness prevention service and the services of visiting nurses should illness come. The service includes a clinic, or center from which is procurable advice on all matters pertaining to health.

All summer resorts are inspected by the officers of the Board early each season and efforts are made to improve and maintain local sanitary conditions, particularly in respect to water supplies and the disposal of sewage

Digest of Sanitary and Hygienic Advance

PUBLIC health activities are so largely concerned with mass observation and statistical method that oftentimes disease control seems to resolve itself into problems of administration. The silent, patient inquiry of the laboratory, however, must ultimately point the direction of preventive effort and the far sighted health worker will avail himself of every opportunity to keep in touch with the vanguard of laboratory research workers.

The Transmission of Herpes.—The work which is being done in the endeavor to prove or disprove the etiological identity of chickenpox and herpes zoster has opened up a new vista of epidemiological thought, bearing as it does on the larger question, the virus diseases in general. During the last three years, a number of investigators have made research into the subject of the other varieties of herpes, and while it is too early to accept or reject their various findings, those who desire to maintain an unbroken continuity of contact with the development of the science of sanitary medicine from a bacterial age into a virus era will find peculiar interest in the report of Milian and Brodier in their annual (1922) review of dermatology (*Par. Med. xii*, No. 8, Mar. 8-22, p. 221 et seq.) in which they discuss the etiology of febrile herpes from the viewpoint of its infectious nature. The portion of their article which refers to herpes is of such interest to health workers that a considerable portion is here translated:

Gruter in 1913 inoculated the cornea of the rabbit with material from a human case of herpes: Loewenstein in 1919 inoculated the serous fluid of various herpes: these results were confirmed by the work of Dörr and Vöchting, Dörr and Schnabel, and Luger and Lauda. The infectious nature of herpes has been demonstrated by the experimental researches of Blanc and Caminopteros and by those of Levaditi, Harvier, and Nicolau.

The contents of a vesicle of labial herpes produces upon the rabbit's eye, either before or after filtration through a bougie, an intense keratoconjunctivitis which may be followed by a fatal encephalitis. This keratoconjunctivitis is transmissible in series and confers a certain local immunity although the other eye is not immune. Genital herpes is equally infectious: its virus produces upon the eye of the rabbit the same effects as those of buccal herpes but the contents of the vesicles of herpes zoster similarly inoculated produce no effect. The virus of herpes inoculated into the dura mater of the rabbit produces a fatal encephalitis comparable to that which follows the sub-dural inoculation of epidemic encephalitis. A pronounced local reaction of the inoculated eye may immunize the animal against a subsequent sub-dural inoculation. The inoculation of the rabbit's cornea with the cerebral material of rabbits dead of herpetic encephalitis reproduces a typical keratitis. The herpetic virus is rapidly destroyed by bile, as is also that of epidemic encephalitis. The skin inoculation of the virus of epidemic encephalitis provokes in rabbits a papulo-squamos dermatitis containing the virus of the disease, and which is followed, probably by the invasion of the terminal filaments of the cutaneous nerves, by the death of the animal from encephalitis. The serum of rabbits immunized against the herpetic virus and of patients attacked or cured of epidemic encephalitis had no reaction from the virus of herpes. Dörr and Schnabel found the latter in attenuated virulence in the saliva of subjects having had herpes. Levaditi and his collaborators also found it constantly present in the saliva of a healthy subject.

The virus of herpes is identical with that of epidemic encephalitis but it is more dermotropic than it. According to Levaditi, Harvier and Nicolau, the virus of herpes, the salivary virus, and the virus of encephalitis are nothing more than variants of unequal pathogenic powers of the same germ, the encephalitis ultra-virus. This ultra-virus has, as do those of vaccinia, rabies and poliomyolitis, an elective affinity for the tissues derived from the ectoderm (cornea, skin, and nervous system) and for the superior segments of the ectoderm (buccal) and naso-pharyngeal mucosa). Levaditi proposes to call the disease-group produced by those ultra-viruses "neurotropic ectodermoses."

Cats as Disseminators of Itch.—Sanitarians generally, and the public in part, are beginning to realize that the exclusion of other living species from the immediate environment of man is an essential to health. It has been recognized for a considerable time that domestic animals play a not inconsiderable rôle in the transmission of itch, although, singularly enough very few of the classical treatises on human dermatology devote very much space to the subject. Thibierge, (*Par Med.*, xii, No. 11, Mar. 8-22, p. 229 et seq.) who has studied the transmission of feline sarcoptic itch to man for the past twelve years believes that it is of far more common occurrence than has been hitherto recognized. Two species the *Sarcoptes notoedres Alepis*, which has also been in rats and mice, and the *Sarcoptes notoedres* Med., xii, No. 11, Mar. 8-22, p. 229 et latter species occurs in the varieties *cati* and *cunicula*. The author gives a complete description of them. They are transmitted to man by direct contact with cats, or indirectly from articles on which the infected animal has rested. Direct transmission is facilitated by the fact that in the cat the lesions are most frequent on the head and ears. While the cure of the disease is not difficult in the hands of a skilled dermatologist, its presence is an economic and aesthetic handicap. From a public health viewpoint, cats are better kept outside the human habitation. At any rate, they should be admitted only if they are clean and in good health and then they should not be fondled or permitted to occupy beds in which people will subsequently sleep.

Rodent Destruction.—Before using the bacterial viruses for rodent destruction, it should be recalled that plague is the most fatal bacterial disease to which the rat is subject, yet despite the widespread geographic distribution of that disease, the rodent specie still flourishes.

Epidemic Encephalitis.—Slight ptosis followed by drowsiness and diminished sensitiveness of the cornea are very early symptoms of epidemic encephalitis.

Maternities as Anti-Syphilitic Centers.—A considerable number of expectant mothers suffering from venereal disease do not seek dispensaries for the treatment of their infection. It has been found in France that the careful examination and treatment of all such persons admitted to maternities has yielded excellent results. The opportunity to give prompt treatment to the newborn child is especially valuable.

Birds as Indices of HCN.—Birds are sixty times more susceptible to the poisonous effects of hydrocyanic acid gas than is man. When using that agent as a fumigant, a bird in a cage should be introduced into the compartment before human beings are permitted to enter.

Per Orum Vaccination Against Malta Fever and Shiga's Bacillus.—Nicolle and Conseil stated before the French Academy at its session of March 13, 1922 (Par. Med. XII, No. 12, Mar. 25, 1922), that they have experimented with the digestive tract as a portal of entry for vaccinating against several human diseases. An experiment was made with Malta

fever and the results obtained seemed to be as good as those following subcutaneous injections. Attempts at vaccination against Shiga's bacillus in the same manner seem to have given identical results. Rabid anti-vaccinationists of the future will probably complain that some evil-minded doctor has been slipping some vaccine into their tea.

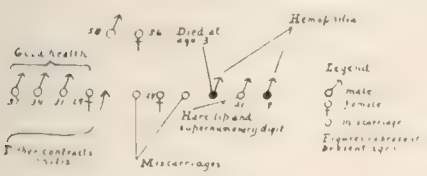
Improved Method of Staining Tubercle Bacilli in Thick Smears.—Stain the specimen with hot carbol-fuchsin and discolor with

Absolute alcohol	80
Nitric acid	20
Formol	100

This solution should be freshly prepared and applied until complete decoloration of the specimen occurs, then wash in water, dry and examine. Bacilli are stained violet on a pink field and it is claimed by C. Picado T., who has evolved and used this method in the Laboratorio de San José, Costo Rico, for several years, that by this procedure the exploration of deep fields is much facilitated.

New Diphtheria Immunity Test.—The *Weekly Bulletin* of the California State Board of Health (Vol. 1, No. 9, Apr. 15-22), Dr. W. H. Kellogg, Director of the Hygiene Laboratory of the California State Board of Health, has devised a new diphtheria test which possesses many distinct advantages over the Schick test, especially for individuals or small groups. The technic of the test will shortly appear in another publication, but it is stated that physicians who desire the test made have simply to send to the laboratory a few drops of blood folded in a sheet of tinfoil as are specimens for the Widal test.

"Visiting the Sins of the Fathers."—Health officers who are actively carrying forward anti-syphilitic measures will find interest in the following disgenic chart which tells its own story:



A couple now aged 58 and 56 years respectively were married 38 years ago; the first four pregnancies resulted in the birth of four normal children, three boys and one girl, all of whom are now living at the ages of 37, 34, 31, and 29. Soon after the birth of the last child in this first group, the father contracted syphilis in extra-marital congress. Out of the six succeeding pregnancies, there are three living children, of whom one is healthy, one is badly deformed, and one is a chronic bleeder.

Put the Birth Certificates to Work.—How many health officers pay any attention to the character of the obstetrical work which is being done in their community except perhaps to hector some ignorant mid-wife who should not be attending confinements anyway? According to the *Health Nuggets-Fillers* of the U. S. Public Health Service, "more than 100,000 of the 250,000 children less than one year old who die every year in the United States, die from causes connected with their birth. The need for further study and investigation of these causes is urgent." This is true as "God's in Gloucester" but in the meantime the babies are dying and the health officer has the weapon in his own hands. There should be a follow-up visit on every birth certificate by the health nurse, thus making it possible to check up accurately on the kind of obstetrical work which the public is getting and to take steps to eliminate those who are doing careless and therefore dangerous obstetrical work.

Test for Cure in Leprosy.—Before paroling lepers whose lesions have cleared up after treatment, it is wise to administer potassium iodid and observe carefully the resulting reaction. Many apparently cured cases will show a return of skin and nerve lesions following this test.

Freedom(?).—The results of the persistent, organized anti-vaccination propaganda should be a source of great satisfaction to all who have had a part in freeing our country from the awful scourge (?) of vaccination which a selfish and misguided medical profession thrust upon it. It is true that in several states, the number of cases of smallpox in 1921 was more than double the number in 1919, that the case-fatality rate has increased 50 per cent, that while most of the cases occurring at present are relatively mild, the disease is increasing in virulence and may assume the malignant type at any time, and that all of this is costing the United States much money, not to say making many aching hearts and pock-marked faces. But what does this matter to the anti-vaccinationist? What does he care how many foolish persons run the risk of having their children killed, or disfigured for life? What he wants is FREEDOM! and the freer it is the better he likes it! He wants a country where anybody shall exercise his God-given right to spread disease, where any mad-dog may roam at will, where anybody who kills an anopheles mosquito shall be guilty of a misdemeanor, where the tuberculous may expectorate where and when they will, where any person with a venereal infection may marry, a country where no one may say to another person, "You shall not endanger the health of the community. If you haven't sense enough to protect yourself against disease, the community will do it for you, for its own self-protection." The voters who supported the anti-vaccination amendment proposed at the 1920 elections should feel much satisfaction at the fact that in 1919 there were 940 cases of smallpox in Alabama as against 2,712 in 1921, while in California the annual number rose from 2,053 to 5,580, in Iowa from 1,794 to 5,774, and in Minnesota from 2,449 to 9,375. This is a wonderful record!

Native Stock Dying Out

Sanitarians of the Michigan State Department of Health who are making studies of births among persons of native and foreign parentage find that during 1921 the foreign groups in Michigan increased 5 per cent faster than did the native Americans. Of the 95,932 children born in the state in 1921 more than two-thirds, or 63,618, were born of native American parents. The remainder, or 32,314 children, had either a foreign father or mother, or foreign parentage on both sides.

Taking the number of native and foreign women in Michigan between the ages of fifteen and forty-four—the child-bearing age—it was possible to secure accurate comparisons showing the number of children born to every one thousand women in each of the two groups. This would illustrate the relative fecundity of native and foreign stocks.

On an intercensal estimate it was found that in 1921 there were 371,600 native born women between the ages of fifteen and forty-four, and 172,300 foreign born women of the same ages. To every group of 1,000 women of native American stock 178 children were born during 1921, while for every one thousand foreign born women there were 188 children born, giving the foreign born stock a birth rate 5 per cent higher than that of the native Americans. Detroit reported 27,613 births in 1921. Of this number 14,050 children were born of foreign parentage and 13,563 of native American parentage.

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The American Medical Association Takes Its Bearings

THE convention of the American Medical Association held at St. Louis May 22-27 distinguished itself from many former conventions in that the voice of the masses was heard in many matters of legislation and general welfare of the medical profession. It used to be the custom of the men and women attending a medical convention to attend the session of some particular section, attend also the various functions staged by the committee on arrangements, and return home without a knowledge of what had been going on in the house of delegates.

This year matters changed considerably. No matter how scientifically inclined a person might be, he not only attended the meeting of a particular section but also lent his ear to what was going on in the House of Delegates. The reason for this is apparent. At no time, have so many questions concerning the doctors and the general public been brought up before the house of delegates. The question of prescribing alcoholic liquors which seemed entirely solved with the Volstead amendment to the constitution has been thought by many doctors to be inadequate. Some considered it too limited in its application as far as the medical practitioner is concerned, and others saw it in loop holes for abuse by a certain class of people. This question which was the subject of more than one resolution in the house of delegates was a live topic of discussion by the doctors in the convention.

The same thing held true also to a less degree of the narcotic prescriptions. Many doctors felt that some change should be made in narcotic regulations.

By far the greatest interest was shown in the implications of group medicine and state medicine in the Sheppard-Towner Act. It was evident that the physicians in attendance at the convention were heartily interested in it and that practically all of them had definite opinions in the matter.

To the observer it is quite evident that these three questions cannot be solved at one conference and that the next annual convention of the American Medical Association will witness a very hot discussion of these questions. As time goes on, doctors are awakening to the fact that the attitude of the public toward medical activities must be ascertained, at least on basic matters and that the doctor can no longer limit his interests to the particular group of patients he is treating.

Whether or not the newer tendencies in the line of social medicine will gain ground is hard to foretell. Certain it is that questions of public health are entering more and more into the realm of the American Medical Association.

Hospital and Community Relationships

THE hospital whether public or private, may in quite an important sense be considered as a health plant. It is the one single institution from which radiates a complete service —surgical, medical, social, investigative, preventive—and is the logical unit of such extensions as modern methods and modern social consciousness seem to demand. The community phases of hospital service are well set out in the definition of a hospital given in the report of the Committee on the Training of Hospital Executives, just issued:

> The hospital may then be defined as a community organization which provides facilities and personnel for rendering the highest possible grades of health service to patients, professional groups, and the community; for educating the community to demand and support adequate health services and sound health policies, for educating additional personnel and professional groups in technical fields, and in cooperative endeavor; and for advancing knowledge of disease and its prevention through technical research and appropriate organization.

The subject matter required for the basic training of a hospital administrator needs to be diversified and, according to the Committee, could well devote much more time than has been given heretofore to public health and the social sciences. Preliminary training could well devote fifty per cent of time now devoted to strictly hospital topics to questions relating to public health, the social sciences, and to organization.

Coordination of Forces in Public Health Campaigns

IN a relatively new field like that of public health, the problems involved in the development of a constructive public health campaign extend far beyond the internal organization of the official health department. It is indeed essential to plan wisely for the apportionment and the expenditure of a health appropriation of the city and the state; such attempts at standardizing official procedure as are being made by the Committee on Municipal Health Department Practice of the American Public Health Association are of fundamental importance. It is almost equally important, however, to provide for the training of the personnel to be entrusted with the expenditure of public health appropriations as was recently emphasized in the conference called under the auspices of Surgeon General Cumming in Washington. It is essential, too, if official public health work is to be effective, that it should be properly correlated with the invaluable activities of the voluntary agencies in the public health field, and that efforts should be made on a more extensive scale to promote widespread public support of the public health movement on the part of the community

It is to the American Public Health Association that one naturally looks for primary leadership here, and in the past this Association has been more or less active along all the lines indicated. There has been within the Association an increasing feeling of discontent with the results achieved and a growing conviction that more might be accomplished by concentration along a narrower line. The whole question of the policy of the Association is now being considered by a strong committee appointed by President McLaughlin, and it seems possible that the Association may decide to shape its policy along definitely professional lines and to leave to other organizations certain phases of the public health movement with which they are perhaps better fitted to deal. If it were frankly recognized that the American Public Health Association, while admitting all who were interested to a grade of associate membership, should be primarily the official organization of the technical experts of this continent in the field of public health it could exercise a great and beneficent influence in the development of professional *esprit de corps*, and in the formulation and standardization of administrative procedures. An American Public Health Association developed along this line should have state branches which like the parent society were primarily professional in nature.

If this policy should be followed, it would then be desirable to organize more popular public health associations, representing primarily the voluntary agencies, to mobilize public support within each state for the stimulation and support of the official program. If the state tuberculosis organizations which have been developed to such a high degree for a particular purpose could be broadened in their scope, as has been already the case in certain instances, and perhaps placed under the leadership of the National Health Council, we should have an ideal dual organization, insuring on the one hand sound professional standards and on the other enlightened popular support.

The third fundamental question, that of the training of sanitary personnel, must in any case be handled in large measure by the universities; but for the training of workers now in the field, the system of health institutes organized by the United States Public Health Service would seem of distinct promise, and it may be hoped that this system will be continued in the future under its present auspices.

Then and Now

PROGRESS is relative. Present achievement is fairly to be appraised only through parallel or contrast with that of an earlier period. In the field of medicine, for instance, if modern highly specialized technic is not effectual in improving general health conditions it must be considered that progress is delayed to the extent that sanitary science lags behind surgical skill. Experimentation in the field of public health is replacing the old method of subjecting the whole people to needless risks on a large scale and gambling on survival of the fittest, but how many of the old difficulties in the way of practising the medical arts and sciences have been removed is little appreciated without a comparison of this age with an earlier period.

We have been reading with interest and much enlightenment a book "The American Herbal," which was brought out to "control variations in practice and to give the newer discoveries and improvements in chemistry to American physicians —especially those in country places" by Samuel Stearns in 1801. These issues are with us more than one hundred years later, but are identified with different situations. "Made in America" drugs are urged in this book, and public aid sought for medical publication and education through legislative permission to raise moneys by a lottery, "a privilege often granted to colleges, churches, blacksmiths, and weavers."

That public opinion still fails to support scientific needs is shown in the recent statement from the Educational Board of the Rockefeller Foundation of huge gifts made necessary because "medical schools do not successfully appeal on a large scale to the general public or the individual donor." The dearth of medical publication, however, no longer exists, and there is a marked contrast in the ease with which data may be compiled, for in the preparation of this "Herbal" Stearns was obliged to collect his material by first hand observation and its accumulation required of him "11,607 miles of travel by land and 11,578 by water."

Perhaps an even greater contrast is seen in the conservative claims of present day physicians regarding the curative powers of modern medicine. The 1801 Herbal abounds in positive cures so many and various that choice might be exerted as to whether cure was sought through purging, phlebotomy, or infusion. Specific and absolute cures were not lacking for cancer, consumption, and the bite of a mad dog. Cider was a wholesale preventive medicine, poultices of horseradish were effective in deliriums, and the left hind foot of an elk was highly curative in epilepsy. Stearns gives minute directions as to the use of a new beverage made from the coffee berry, which was to be boiled from eight to twelve hours before being "drank," and was known to "assist the digestion, promote the natural secretions, prevent sleepiness, and relieve spasmodic asthma." It was likewise recommended for kidney disorders. One hundred years *have* marked progress. Modern pharmacology is at least free from magic, the newer scientific findings find immediate circulation as news, and scientific doubt demands proof positive of "cures." Nor would any medical writer of the present day dare to herald his book by the naïve statement made by this author that his work had brought together "a larger number of new medical discoveries and improvements than was ever collected in any former period of time since the world began."

The Physician the First Line of Sanitary Defense

IN THE development of the specialty of sanitation, there is a danger that the importance of the practising physician as the first line of sanitary defense may be lost sight of. The physician himself is apt to feel that his connection with sanitary work is remote and that such sanitary duties as he is legally required to perform are an unnecessary hardship, while on the other hand, the sanitarian may assume a self-sufficiency and forgets that in the control of the infections, he is helpless without the intelligent cooperation of the practitioner.

To cite the concrete example of the prevention of the spread of typhoid fever from the infectious patient to the infectible citizen: the health officer administers the mass-protective operations through the work of his bacteriologist who makes the laboratory diagnosis, determines the purity of the water supply by appropriate examinations, and prepares the anti-typhoid vaccine: the health officer carries on the investigation of the source of the disease and the way it has been disseminated and conducts the propaganda for public education: his sanitary engineer administers the water supply, the sewage disposal, and the garbage collection and destruction: his food and milk inspectors insure the purity of these potential vehicles for the *Bacillus typhosus*: the health officer carries out the measures necessary to control carriers. But it is the physician who first sees the sick man, who makes the clinical diagnosis, who supervises the disinfection of the discharges, who instructs and vaccinates the family, who makes the morbidity report and in case of a fatal outcome, the death report.

A good many physicians take their sanitary responsibilities rather lightly and perhaps the reason for this lies in the undergraduate training they have received. It is probably more accurate in the case of the older men to say "the undergraduate training they have *not* received." Undergraduate instruction in hygiene either receives too little stress or the enthusiastic lecturer tries to make sanitarians out of young men whose minds are already turning longingly to some other specialty. As a rule, the hygiene course is regarded by the student body as a bore or a "cinch-course." The average student takes it because he has to and learns the minimum on which to acquire a passing mark. Of course there are exceptions. A skillful teacher can make the course one of almost romantic interest and can impart to the simplest fact a marvelous adhesive quality. Also there are good students whose minds like hungry amebae throw their pseudopodia around every fact. But, unfortunately, such a teacher or such a student is in the words of Horace a *"rara avis in terrae."*

Undergraduate instruction in hygiene for medical students should be basic, aiming at laying a good groundwork upon which the student may later, by special courses, erect a solid superstructure if he desires to specialize in sanitary medicine. It should be an elementary course, dealing with epidemiology in a broad way rather in minutiae, aiming to give the student a bird's-eye view of the requirements of health rather than a microscopic picture of the prevention of disease. Above all, it should emphasize the public health duties and responsibilities of physicians, so ingraining the lesson that whatsoever specialty may be later adopted as a life work, the fulfillment of these obligations will be automatic. The average young graduate does not know how to make out a death certificate properly; when it comes to deciding between the primary and secondary causes of death, he is often puzzled to make a choice; he dimly knows that he should report births but he is usually unconvinced as to the necessity of so doing, other than in compliance with a law which he unconsciously regards as unjust; the notification of the communicable diseases to him is a nuisance and he considers the reporting of tuberculous and venereal cases as an unwarranted invasion of his privacy.

Yet these things are the first and great public health duties of physicians—they are the messages from the front-line trench upon which the staff in the rear may base the attack—yet the medical colleges which accurately train their students in these simple but vitally important things are few and far between.

While the medical college is the place to begin, the graduate need not be forgotten. Everything from moral suasion to arrest, fines, and imprisonment has been tried to get practitioners to cooperate in public health work, to secure the minimum assistance which the law requires, but a certain proportion of graduate physicians will not make a report if they can avoid so doing. This is the place for the health officer to educate, first of all the physician himself and next the layman, so that it will be publicly realized that the practitioner who does not make reports is unfaithful to his duty to his patient and to the community, of which he is, after all, the first line of sanitary defense.

Gratuitous Medical Advice by Amateurs

IT SEEMS strange that medical advice should be so freely given by people who know absolutely nothing about medicine and so credulously received. Why it is that on medical subjects, the layman is so ready to contradict the opinion of a specialist it is rather hard to say. It may be due to the mere fact that on most other subjects the layman knows more than he does of medicine. The definition of an argument that it consists of two persons talking about something of which neither knows anything may to a certain extent explain the condition here.

The habit of giving advice on medical questions as well as the habit of receiving it is much more pernicious than the average person realizes. Numerous instances may be recalled in which temporary or even permanent harm was done because the patient followed some detrimental advice. A case in point occurred recently in an industrial plant. One of the employees swallowed a pin. Rather frightened, he left his work to go up to consult the physician at the plant, when the department manager—a woman of apparently average intelligence—intercepted him and told him he ought to waste no time even to go to a doctor's office but should instead run to the drug store and quickly get a large dose of castor oil. The case followed the usual course of complication from delay and wrong method, but the man eventually recovered. The department manager when severely reprimanded, was at first very indignant and could not understand why she should be scolded, especially as but a few months before a physician gave her baby a dose of castor oil after the baby had swallowed a small marble. She regarded the two instances as parallel and depended on her own experience. The seriousness of her conclusion was fully explained to her and she will probably never again make the same mistake.

If a person were asked for advice concerning a legal tangle or concerning a business problem the advice usually given would be: "That does not look very well—you ought to see a lawyer," or "I would be careful there, you may lose a lot of money. You ought to see so and so, he is in that business." In either case sums of money are at stake which, when compared to a problem of health or life and death are, strange to say, held as relatively unimportant. How often have we heard stories like the following:

"Mrs. Jones told me to put on carbolic vaselin and I didn't know it would do any harm;" or, "Mrs. Smith said that when her baby was burned that the doctor put on some oil and it healed, and I didn't know that the scar would pull little Johnie's arm up so that he couldn't bend it any more."

While we are launching campaigns against cancer, campaigns against goiter, campaigns against infections, etc., it might be apropos to launch a campaign against the readiness of amateurs to give medical advice, perhaps in situations that would tax the judgment of a trained and experienced medical man.

Visual Defects in Schools

THE value of school medical service to the community is nowhere better illustrated than in the care of the eyes of young children, states a recent editorial in the *Lancet*. In Bristol, out of 1,452 children for whom spectacles were prescribed, in only five cases did the children fail to obtain them, but it is pointed out that in the case of squint, which affects 2 per cent of the school population, school inspection comes too late for corrective measures as by the time the child has reached school age in a large proportion of cases the squinting eye has already become amblyopic, and there remains to be devised some effective way of getting squinting children of less than school age under treatment.

It is recommended that for statistical purposes the term "defective vision" be defined. The fact that from Bristol 4.41 school children were reported as having defective vision, while in Kent the number of children affected was reported as 571, indicates a wide difference in standards of examination. When we read that in cases of eyestrain 60 per cent were due to hyperopia and 20 per cent to hyperopic astigmatism, it becomes important to determine the proportion of hyperopia to the total power of accommodation which is considered sufficient to cause eyestrain, and what is the minimum amount of astigmatism in children which calls for correction. School furniture and school lighting come in for their share of criticism as causing eye disease. Undoubtedly faulty postures favor myopia, as do positions requiring school children to face the source of light.

Industrial Physicians in Seventh Annual Meeting

THE American Association of Industrial Physicians and Surgeons met in their seventh annual session in St. Louis May 22 and 23. It is interesting to note the progress of this Association from year to year as indicated by the character of its successive meetings. This interest was accentuated in the St. Louis conference in that the past year of greatest business depression was a most severe test as to the stability of industrial medicine.

To those of faint heart the report of the Secretary-Treasurer, showing a gain of approximately one hundred members, with a corresponding decrease in the list of members delinquent in dues, must have been encouraging. The strong position of the Association, as reflected in the report of the year's work, not only reflects great credit upon the officers of the Association but should forever dispel the notion that this new specialty is a war baby, to disappear from view along with many other frills introduced into industry for temporary advantage during that time of stress. On the contrary, the character of the program, the quality and quantity of attendance can suggest but one thing, and that is a progression that is definite and continuous: that in the main Industry has sensed the true values in medical supervision of employees, and that with the return of business prosperity industrial medicine will more and more become an integral part of any well considered program of management.

The luncheon was attended by one hundred prominent business men of St. Louis.

Perhaps the most important object considered was that of the absolute necessity of finding ways and means of financing a full time secretary within the coming months. A fully matured plan of raising the required money will shortly be placed before the membership, but the final responsibility of getting the fund together will fall upon the individual members. A sufficient number of the men present expressed a willingness to appeal to their several corporations and the belief that substantial pledges could be secured for a try-out period covering a year. It was also that general opinion that a full time secretary would so improve the value of the Association to Industry that no difficulty would be found thereafter in securing ample funds for really extensive activities.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

Editors for the Association

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Common Sense in Factory Ventilation

Primary Aims of Air Conditioning Are Air Movement and Avoiding Overheating

BY C.-E. A. WINSLOW, DR. P.H., PROFESSOR OF PUBLIC HEALTH, YALE SCHOOL OF MEDICINE, CHAIRMAN, NEW YORK STATE COMMISSION ON VENTILATION, NEW HAVEN, CONN.

STUDIES which have been conducted in recent years have gone far to clarify our ideas as to the objectives of ventilation; and it is now universally recognized that the primary physiological aim of air conditioning is to avoid overheating and provide a moderate but not exclusive degree of air movement. In industrial processes which involve the generation of poisonous fumes or dusts and in processes where mineral or metallic dust threatens direct mechanical injury to the lung tissue, the chemical and microscopical characteristics of the atmosphere become of prime importance. The fume and dust problem, however, is a specific one with which the present article does not attempt to deal. In the average factory work room as in the office, school, or auditorium, we are not concerned with oxygen exhaustion or carbon dioxid production which never reach a point where they are physically harmful; nor are we concerned with the presence of hypothetical crowd poison which numerous careful experiments have shown to be a myth. The cause of discomfort in the ordinary badly ventilated room is heat and stagnation combined in many instances with excess humidity, and it is these conditions which we must strive to control if factory life is to be healthful and efficient.

While recent studies have freed us from the fear of certain atmospheric bogies of the past, they have only served to emphasize more and more clearly the serious harm that is due to the neglect of proper temperature control in occupied rooms. The researches of the New York State Commission on Ventilation in particular have indicated that even a temperature of 75°F. exerts a fundamental influence upon the body temperature, blood pressure, and heart rate, that it substantially reduces efficiency, and that it tends to a material increase in the prevalence of respiratory disease. When we note that under conditions comparable to those which obtain in the ordinary factory the amount of physical work performed in a given time is 15 per cent greater at 68° than at 75° we can realize the vital importance of this problem. Furthermore, in the New York studies the absence due to respiratory disease was increased about 75 per cent in slightly overheated school-room as compared with those maintained at a temperature between 66° and 67°, which indicates the appalling loss to industry due to absenteeism which may be properly chargeable against defective temperature control. A survey of temperature conditions in New York factories some years ago showed that in 215 factory work-rooms, studied in cool weather when the outside temperature was 70° or below, only 59 rooms were at a temperature of 72° or less, 93 at a temperature between 73 and 79° and 63 at a temperature of 80° and over. The loss in human vitality and productive efficiency due to overheating in the factories of the United States is an almost incalculable one.

The first step in factory ventilation is a definite knowledge of existing conditions. No more important advance was ever taken in schoolroom ventilation than the requirement in New York City that a thermometer should be installed on the front of each teacher's desk with a big red line at 68°. There should be a thermometer installed in every factory workroom and periodic observation of this thermometer should be recognized as an essential part of the duty of the foreman. As the representative of the management he is in direct charge of production and the temperature of the air is a primary factor in productive industry.

When the temperature is found to exceed 68° in the ordinary factory work-room there is a clear indication that something should be done; and nine times out of ten the remedy can be found without elaborate technical investigation but by the application of the ordinary principles of common sense. In a great many, perhaps the majority of instances, the overheating is due not to any lack of essential ventilation provisions but merely to the unintelligent use of heat sources and can be controlled by the turning off of radiation units. Too often the valves are opened in October and never touched again until May, while a mod-

icum of intelligent supervision would not only contribute to health and efficiency but would effect a material saving in the coal bills as well.

If the control of direct and indirect heating is not sufficient by itself to maintain a low temperature, recourse should next be had to the possibilities of window ventilation and in a considerable proportion of factory work-rooms the flushing out of the work-room by opening all the windows before work and during the noon hour, with as much window ventilation as may be possible during the shifts, will secure good working conditions. Where the room is large and crowded it may be necessary to adopt the three devices which have been so useful in school-room ventilation—the location of radiation units beneath the windows to temper the incoming air—the admission of air over slanting window boards to avoid drafts on those near by—and the provision of a gravity exhaust duct for the removal of vitiated room air near the ceiling. Once the principles of this type of ventilation are grasped, its application to a given work-room can be easily made by any competent engineer.

Main Points of Air Conditioning

There will always of course remain a certain group of factory work-rooms where the problems of ventilation are more difficult and where expert advice will be required. In very large and very crowded rooms and in rooms where the industrial processes eliminate a large amount of heat or add materially to the humidity of the atmosphere, plenum or exhaust ventilation or both will be required. We have ample experience to show that even very difficult problems can be solved by the ventilating engineers with complete success. Factory work-rooms containing annealing furnaces producing an enormous amount of heat and factory work rooms in which a high temperature is combined with the constant generation of steam can be maintained, during the winter season at least, in perfectly comfortable conditions by properly designed fan ventilation systems. Where systems of this kind are required, however, it is well to call in the best type of expert advice. If plenum ventilation is needed at all, it requires expert design in order to be efficient and the average forced ventilating system designed by plant mechanics is, in my experience, generally worse than useless.

A common sense attempt to promote health and efficiency in the factory through sound air conditioning involves, therefore, the following main points: (a) installation of thermometers in the factory work rooms and the responsibility of the foreman for a knowledge of the condition which exists; (b) the attempt to maintain temperatures below 68° by the regulation of heat sources and the intelligent manipulation of windows; (c) if these means fail after systematic trial, recourse to a qualified heating and ventilating engineer. The general pursuance of this policy would involve a saving of many days of illness to the industrial worker and of many thousands of dollars to the manufacturers of the United States.

Remarks on Color Vision

IMPORTANT as is the aspect of color vision from the medical practitioner's standpoint, the degree of color blindness which renders a man dangerous to public service is still undetermined and there is no universally recognized standard of rejection for color blindness since the wool test has become obsolete.[1] The whole matter has been reviewed by Captain E. J. Grow, M.C., U.S.N., in a recent issue of *The Military Surgeon.*

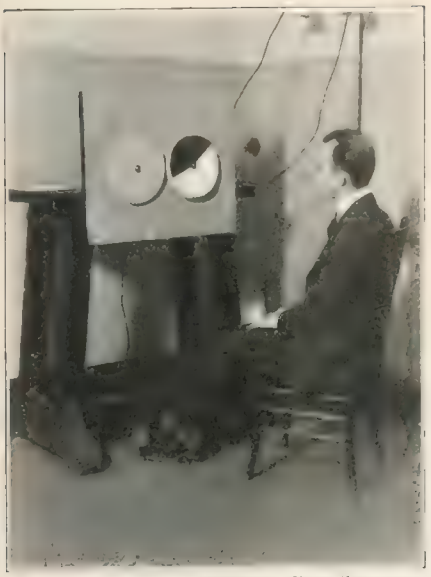
Color blindness is found both as an acquired and congenital affection. Congenital color blindness may present a total inability to distinguish any color whatever, a condition very rarely found, or it may show a defect in color perception so slight as to be discovered only with difficulty. Between these two extremes an infinite number of degrees of partial color blindness may be found; in fact, it is difficult to find two color blind persons with exactly the same amount and degree of color defect. It is also rather unusual to find a person who is completely color blind to one color without at the same time being more or less deficient in the perception of at least one other color.

No one knows with certainty exactly how colors are perceived by the color blind. A person who is red blind sees a dark red object as nearly black, while a light, well saturated red excites in him a visual sensation not unlike that received from a light green. In this way a red-blind individual is often confusing certain shades of red and green, but not all shades. It is pointed out by Grow that this tendency to confuse red and green is made the more troublesome in the Navy by the fact that most of the running lights in the Navy have the distinct bluish cast which is so often a confusion color with the red-blind.

Keystone View Company.

Color tests, so great a factor in safety, and so important in estimates of vocational fitness, are still largely optional and are far from being uniform either in standards or practice. The border-line cases often baffle detection. In the test here shown the color perimeter is employed to determine the exact visual fields affected by the defective color vision.

1. Grow, Capt. E. J.: Remarks on Color Blindness, Together with Some of the Objections Found with a Few of the Color Perception Tests Now in Use, Military Surgeon, November, 1921.



Keystone View Company.

No one knows exactly how colors appear to the color blind, but in a general way the acuity of color vision finds an index in the color-mixing test. Both of the discs shown are the same. The one on the left revolves and shows the proportionate admixture of white which gives the impression of gray. This test is made in the paint industry.

The quality of luminosity in a color is very readily utilized by the color blind in distinguishing colors, a fact not to be lost sight of in tests for color blindness.

Acquired color blindness is always met with in cases of optic atrophy, a disease which furnishes one of the most frequent causes of disturbed color vision. Here there is a loss of visual acuity along with a gradual lessening of the color vision. In this class of cases the loss of central perception for green is first noticed, followed closely by that for red, and by the time these are gone the loss of perception for yellow and, finally, for blue is experienced. In some cases of poisoning by chemicals, also not infrequently with persons who use alcohol and tobacco in excess, there is a small central scotoma for colors. If from these latter causes, color perception is often restored provided the case is properly treated. Almost invariably in acquired color blindness the form vision is also faulty, which affords an aid in diagnosing the acquired from the congenital type.

The chief need, according to Grow, is the "establishment of a point of threshold below which it is not safe to accept men for a given service." Edridge-Green[2] states that "anyone who can distinguish between the red, green, and white lights at a distance of a mile has sufficiently good color perception for the purpose of navigation at sea. He has undertaken to define the degree of defective color perception corresponding to a failure to distinguish between the red, green, and white lights used at sea at a distance of a mile. He considers that about 25 per cent of men have diminished color perception in comparison with the remaining 75 per cent who are normal. Only about 5 per cent, however, will fail to distinguish between the red, green, and white lights of a properly constructed lantern or with the actual lights themselves at a distance of a mile. These men will equally fail with other properly constructed tests. These defectives, says Edridge-Green, on examination with the spectrometer, may be ranged in three definite classes: (1) The dichromic, who see only two colors in the spectrum, red and violet; (2) the trichromic, who see only three colors in the spectrum, red, green, and violet, and who designate the yellow of the spectrum as red-green; and (3) those who have shortening of the red end of the spectrum. A person of very acute color vision can distinguish seven colors in the solar spectrum. Those who have for all practical purposes normal color vision see six, five, or four colors.

Defects of light perception are quite distinct from defective color perception, according to Edridge-Green. When the luminosity curve is the same as normal, there is no evidence to show that the perception of white is not the same as normal. He adduces some interesting facts with reference to the effect of fatigue on the appearance of colors, some of which he considers so novel and unexpected that much further research is needed before a definite explanation can be given of the underlying physiological processes of color perception.

2. Edridge-Green, F. W.: New Researches in Color Vision, Lancet, Lond., Feb. 25, 1922.

Value of Comparative Records in Industry*

Should Standardize Sickness, Accident and Absentee Statistics for Use of All

By ROBERT E. ANDREWS, M.D., Ludlow Manufacturing Associates, Ludlow, Mass.

IN attempting to prepare a short paper on the value of keeping records comparable with those of similar industries, the writer finds that there is almost a complete lack of data to which to point as a forceful example and argument. With the exception of the incomplete returns gathered by the Public Health Service and a few scattered publications, the subject seems to have been completely neglected. There seem as yet to be no accepted standards by which the medical departments of two concerns working along similar lines are classifying their risks, their accidents, their illnesses, their lost time, and industrial hazards.

To collect adequate data useful to others in similar industrial work will call for research. Scattered general surveys of special groups of employees have been carried out, but the facts as determined have little value in comparison with other industries. The motive for carrying these surveys out has been almost completely selfish, with little or no thought toward the help they might bring to industry in general and their type of industry in particular.

The economic loss to industry through illness and accident has never been accurately determined, but is reflected directly through absentee records. The lost time, the labor turnover, the expense of training new operatives, the resulting idle machinery, all enter into the total cost of the above. Nobody will deny the necessity for cutting down unnecessary absenteeism, but how many know what is necessary absenteeism, and what is the irreducible minimum?

Standardization of keeping and publishing results is absolutely necessary to make statistics talk, and to get the greatest value from a study of medical problems, it is absolutely essential to compare them with others similarly recorded, but such facts are not at the present time available.

*Read before the New England Conference of Physicians in Industry, January 7, 1922.

Physicians in industry should endeavor to establish an efficient method of comparison of the tangible results of constructive work.

Statistics as such have no value except through their interpretation. To the narrow minded they are a nuisance, a bother, an expense, something never followed up, and requiring extra clerical help and overtime study. The introduction of the fairly simple equipment necessary has not yet been forced to the attention of industrial physicians, and it is of this equipment that will be treated later.

The following questions are those the solution of which among many others would be readily at hand if comparative records were available: (1) How do the hazards of your industry compare with those of other similar concerns? (2) What is your per cent of lost time injuries as compared with theirs? (3) Have you a healthier working force? (4) Are you losing more days out from sickness than they? (5) Are your illnesses the same proportionately as theirs? (6) Is your percentage of sickness to total absenteeism higher or lower than theirs? (7) Are your methods of combating illness and injury giving you better results? (8) How does your risk of subnormals on specific jobs compare? (9) Have you a greater proportion of members in your organization of the sickly and careless group? (10) When you have segregated these most frequently using the clinic, do you find this group too large? (11) Is your record better than your competitor's and can you prove it?

The application of a standard method for determining all this has yet to be worked out. A tentative plan has just been developed and instituted by the writer, a description of which will be given later. To accomplish what we wish to know there are certain data which must be available or capable of interpretation through statistics. First, a "lost time illness" classification must be drawn up, preferably according to the "International List of Causes of Death," and next, a classification of lost time accidents. There are two methods of analysis (1) by Holerith punch card, or (2) by a punch card of the "Findex System." The following is a Holerith punch card as devised by the writer to record sicknesses; accident (compensation, non-compensation and outside), both as to types and cause; absenteeism; lost time; etc.

The following codes under their separate headings were drawn up for the proper punching of the above card. The cards when punched may be sorted as desired for analysis:

Disease Classification

(1) Typhoid; (2) influenza and grippe; (3) epidemic smallpox; (4) measles; (5) scarlet fever; (6) whooping cough; (7) diphtheria; (8) mumps; (9) German measles; (10) chicken pox; (11) other epidemics; (12) purulent infections and septicemia; (13) pulmonary tuberculosis; (14) other forms of tuberculosis; (15) cancer, all forms; (16) rheumatism; (17) chronic occupational poisons; (18) other general diseases; (19) mental alienation; (20) neuralgia and neuritis; (21) other diseases of the nervous system; (22) diseases of eyes and adnexa; (23) diseases of ears; (24) diseases of the heart; (25) diseases of veins; (26) other diseases of circulatory system.

(27) Colds and other diseases of nasal fossae; (28) bronchitis; (29) broncho pneumonia and lobar pneumonia; (30) pleurisy; (31) other diseases of respiratory system; (32) diseases of mouth and adnexa; (33) tonsilitis and other diseases of the pharynx; (34) diseases of the stomach; (35) diarrhoea and enteritis; (36) appendicitis and typhlitis; (37) hernia; (38) other diseases of the digestive system; (39) acute nephritis and bright's disease; (40) other genito-urinary diseases, non-venereal; (41) furuncle; (42) other skin diseases; (43) diseases of bones and joints; (44) lumbago and other diseases of organs of locomotion; (45) malformations; (46) affections produced by external causes; (47) ill defined and unclassified diseases; (48) sickness of short disability; (49) venereal disease and complications; (50) gynecological disturbances; (51) pregnancy.

Code of Accident Causes

(1) Power engine; (2) power turbine; (3) power motor; (4) power H. T. transmission machinery; (5) power low T. transmission machinery; (6) transmission on jack shaft; (7) transmission countershafts; (8) transmission line shaft; (9) elevator car; (10) elevator machinery; (11) elevator landing; (12) tools, power; (13) tools, power, portable; (14) machinery point of operation; (15) machinery moving parts; (16) fall; (17) falling material; (18) handling; (19) hand tools; (20) electrical; (21) transportation; (22) horse play; (23) bobbins; (24) boxes; (25) floor; (26) striking object; (27) acid; (28) conveyor; (29) occupational; (30) unclassified.

Code of Accident Types

(1) Slivers; (2) abrasions; (3) contusions; (4) lacerations; (5) septic cases; (6) strains and sprains; (7) fractures; (8) foreign bodies in eye; (9) boils; (10) burns.

Code of Occupation

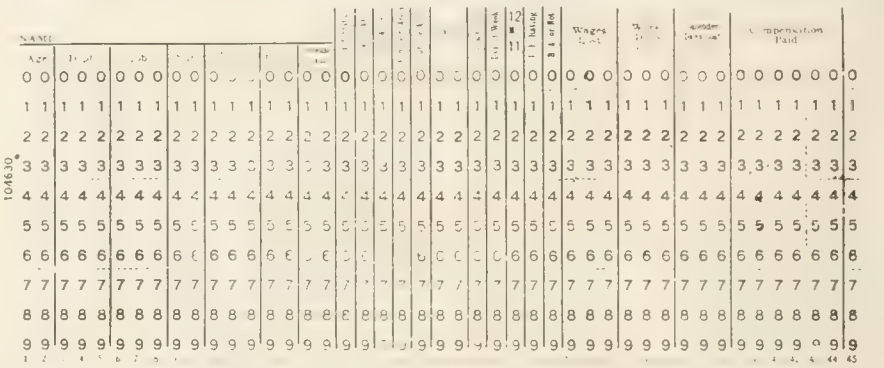
(1) Overseer; (2) assistant; (3) second hand; (4) clerk; (5) oiler; (6) spare; (7) elevator; (8) weigher; (9) box man; (10) trucker; (11) repairer; (12) cleaning; (13) sweeping; (14) waste and flyings; (15) dust shaker; (16) bin man; (17) belts, bands and rollers; (18) bobbin setter; (19) inspector; (20) lagger; (21) janitor; (22) selecting jute; (23) bagging sorter; (24) starch carrier; (25) slasher tender; (26) loom fixer; (27) cleaning bobbins; (28) ball binding; (29) opener; (30) raw stock piecer.

(31) Softener feeder; (32) softener catcher; (33) picker tender; (34) emulsion mixer; (35) batcher; (36) knot chopper; (37) hammer; (38) separator feeder; (39) lapper; (40) spreader; (41) can packer; (42) card front; (43) card back; (44) frame front; (45) frame back; (46) drawing hand; (47) single card; (48) 1½ card; (49) double card; (50) head doffer; (51) doffer; (52) rover; (53) card picker; (54) piecing; (55) spinning; (56) creeling; (57) quilling; (58) weaving webbing; (59) weaving bagging; (60) rolling; (61) polishing; (62) reeling; (63) twisting; (64) tubing.

(65) Laying; (66) winding; (67) dyeing; (68) bundling; (69) balling; (70) sewing; (71) loading; (72) salt mixing; (73) dresser tender; (74) filling winder; (75) tying in; (76) calender; (77) folder; (78) bag stamper; (79) bag sewer; (80) bag repairer; (81) baler; (82) marker; (83) machinist; (84) blacksmith; (85) welder; (86) steam fitter; (87) pin shop; (88) repair shop; (89) tinsmith; (90) belt shop; (91) carpenter; (92) electrician; (93) painter; (94) power house; (95) engineer; (96) laborer; (97) watchman; (98) store clerk; (99) checker.

Code of Nationality

(1) American; (2) Scotch; (3) French; (4) Portuguese; (5) Polish; (6) Italian; (7) English; (8) Irish; (9) German; (10) Indian; (11) Lithuanian; (12) Hungarian; (13) Russian; (14) Greek; (15) Armenian; (16) Bohemian; (17) Belgian; (18) Servian; (19) Syrian; (20) Spanish.



Code of Sex Status

(1) Man, single; (2) man, married; (3) man, widowed; (4) woman, single; (5) woman, married; (6) woman, widowed; (7) divorced man; (8) divorced woman.

Code of Absenteeisms

(1) Compensation accident; (2) non compensation accident; (3) outside accident; (4) sickness; (5) sickness in family; (6) excused; (7) unexcused; (8) vacation; (9) needed at home; (10) marriage.

The application of these codes will give among other things:

(1) Data on lost time from sickness; (2) data on lost time from accidents; (3) facts for analysis of the above by sickness, accident, age, department, sex, martial status, nationality, job, length of service, and day of week and months; (4) data on the frequency of illness and accident among our subnormal risks on specific jobs; (5) seasonal fluctuations of our sickness and injuries; (6) the effect of the social status on our absenteeism; (7) effect of jobs on development of degenerative disease; (8) segregation of our careless and sickly group; (9) progressive reduction of accident and injury from intelligent study of jobs and worker.

The standardization of sickness, accident, and absentee statistics in available form in one's own plant and industry for comparative purposes is a duty every industrial physician should be called upon to sponsor.

Tuberculosis as an Occupational Disease

The Factors Primarily Responsible for Lowered Resistance Activate Tuberculosis

By ROBERT THOMAS LEGGE, M.D., F.A.C.S., Professor of Hygiene, University of California, Berkeley, Cal.

IN A recent number of the London *Lancet*, Professor Benjamin Moore, under the title of "Factory Conditions and Phthisis in Great Britain," reports some extensive studies on the effects of the massing together of workmen in factories as distinct from the effects of urban housing, and showed clearly that urban employment conduces to increase the prevalence of phthisis. He states that it is fairly well known that there is more tuberculosis among males than females in cities, and that the reverse is the case in the country. Prior to seventy years ago this condition did not exist, as it is an outcome of modern industry. Up to the age of fourteen or fifteen, coincident with the usual beginning of employment in industry, the mortality of females is 50 per cent greater than that of males. The mortality of both sexes is greater in rural than in urban districts up to the twentieth year, and between the twentieth and thirtieth years this condition is reversed. After the thirtieth year there begins an enormous increase in the death rate among urban males, so that while the death rate from the disease stays nearly at level for rural males, and for rural and city females, the urban males throughout the country die on an average of double this rate and over.

Further proof that the cause of this higher mortality among urban males is due to working and not to housing conditions, is found in the fact that up to the twentieth year both urban and rural males are healthier than females, and in the case of both sexes, urban dwellers are healthier than rural.

Deaths from phthisis among printers, cutlers, grinders, quartz workers, and file makers follow the same upward trend as those among urban males, and observations in factories of conditions of work, seem to fix these working conditions as the true cause of the trouble. How noticeable are these facts when we note that the girl who remains at home and the professional man or laborer in and out of doors industrial pursuit, are comparatively immune from tuberculosis, whereas the sister or brother in the mill, factory or office falls a victim to the disease.

Tuberculosis may well be considered an occupational disease when medical supervision with periodical physical examination are not provided, and when remedy is not sought for such industrial health hazards as dust, dampness, devitalized air, darkness, fatigue, unsafe temperatures, and avoidable poisons and infections.

That Industry is sensing this responsibility is attested by the application in industry of the principles of public health nursing, supplemented of late by specific attention to such defects in the nutrition of workers as can be laid at the door of wage or working conditions.

Many Concurrent Factors

Tuberculosis in industrial employees usually follows after a long period of exposure to debilitating conditions. The factors that are primarily responsible are overstrain, unhealthful surroundings, and close contact with operators already infected with the disease. As Hoffman has clearly proved in his "Statistics of Mortality" dust in the dusty trades plays the important rôle as the principal factor. It makes very little difference as to what kind of dust the artisan has been exposed: whether metallic, mineral, vegetable or animal. True, some are worse than others, but any dust that is disseminated in the atmosphere and inhaled by the workers, will sooner or later impair the respiratory organs, and produce a favorable nidus for the active development of the disease.

Such a hazard not only lowers the production of the antibodies that would have been resistant to the disease had the worker been employed in a more favorable environment, but it also is responsible for lighting up arrested conditions that may antedate his employment. Even accepting the modern conception that tuberculosis is a social disease, that approximately 85 per cent of the human stock have had some evidence of the infection, and that the disease is contracted in infancy by direct contact and infected milk, medical sociologists, public health officials, and industrial physicians must recognize that unfavorable industrial agencies play the important rôle in re-activation of morbidity in tuberculosis and its greater mortality.

Other contributing factors that must not be lost sight of in industry, and which can be safely labeled occupational hazards, are the dangerous irritating and toxic fumes, excessive humidity, coupled with dampness, extreme heat, cold, and darkness, which tend to reduce the forces of the body. Fatigue due to strain and overwork and alcoholism increases the likelihood of infection as the resistance is lowered under the conditions. Faulty posture, overcrowding, poor ventilation, improper food, and lack of proper rest all figure in the etiology of tuberculosis as an occupational disease.

Pneumonokoniosis is a chronic interstitial pneumonia accompanied by a deposit of pigment due to different forms of dust encountered under conditions of employment. The physical characters of the dust are the important factors in the morbidity and mortality of the disease. In the case of coal miners, anthracosis is not so dangerous as in the case of quartz miners or stone grinders (silicosis) on account of the angulated sharp particles of dust which are more irritating to the ciliated mucosa of the bronchial tract and therefore increase a greater phagocytosis. These particles of dust are carried by the phagocytic epithelial cells to the lymphatics, the bronchial glands, and the finer frame work of the lung cells where they are deposited. Recent research on the phagocytosis of quartz *vs.* carbon, showed that the latter is ingested about four times more readily. Mortality statistics now available show that the death rate from tuberculosis in the dusty trades is four times greater than in the population as a whole. Again let it be clearly understood that adult tuberculosis seems only possible when damaged lung tis-

sues receive a constant infection through the air, and the worker is thereby shorn of his resistance and the arrested process is reactivated; for 90 per cent of the industrial workers have received their infections during infancy and early childhood, when the disease is highly communicable and the tissues more vulnerable.

The relationship of tuberculosis to occupational disease is definite and of great importance. It is obvious in consideration of the facts stated, that occupation is pre-eminently at fault, but in determining such a responsibility a careful history of personal and home conditions is necessary, *i.e.*, a recent influenza or pneumonia history, housing, alcoholism, food, clothing and other agencies that would render the worker an easy prey to tuberculosis.

Armstrong has concluded that the Framingham experiment in community health and tuberculosis demonstration holds an important relationship to industrial medicine, and proves definitely what any community can accomplish through the agency of proper medical and public health machinery—1 per cent of the population is suffering from tuberculosis and there are nine or ten active cases to every annual death from the disease. The average community does not report more than 55 per cent of its active cases which was raised 85 per cent at Framingham, and the institutionalization of acute cases was raised from 13 per cent to 42 per cent. Adequate community health work of this kind increased the health budget from forty cents to two dollars *per capita*. But note what was accomplished towards tuberculosis control and mortality: the average tuberculosis mortality for the ten years prior to the demonstration was 121 per 100,000; in 1920 it was cut in half and in 1921 to about one fourth.

Education is the greatest weapon society possesses in the prevention of tuberculosis. The secret of success is teaching in an elementary manner to the women of the home, the necessity of living hygienic lives, the great benefits of fresh air, sunshine, rest, cleanliness, better food and the use of pasteurized milk. And it should be particularly emphasized that tuberculosis is a highly infectious disease in infants and young children, and how essential it is to keep sufferers of active cases of tuberculosis from their presence. The separation of the sick from the well is the modern outcome of the preventorium and sanitarium. The danger of spitting is a national byword, the result of "advertising." Arrest the tubercle bacilli and spare the child is a slogan for a universal anti-tuberculosis campaign.

It is reputed that 10 per cent of the milk supplied in large cities is infected with tuberculosis. If this is the case, then there should be a law enforced to the effect that only pasteurized milk and butter be offered for sale.

How are the disasters caused by ignorance of the correct conditions of living and working to be brought home to the women who are the future mothers of men? This is answered by educational methods of the public health nurse. This new institution is the last link in the chain of public health activities. The public health nurse is a friendly advisor, a teacher in health education, a social worker and one who can be practical whenever the emergency arises. Her function is to be in the home, not as a "gum shoe" officer, but as a health friend and counselor. Happy will be the day when every precinct will have a public health nurse who has made a survey of her district and knows of every freeholder therein. Then tuberculosis and infectious diseases will be so checked that their existence will be a rarity and the fifty-thousand workers who die of consumption yearly will be living as an asset to the community.

One of the modern advancements made in recent years is the extension of nutrition work into industry. While it is true that the cafeterias were built not from philanthropic motives, but for a strictly business consideration, nevertheless they have proved to serve as a health factor. The industrial manager has been cognizant of the ill effects of the indigestible, old-time, free lunch and the poorly balanced and cold diet of the dinner pail. The direct and indirect advantages are noted in a marked improvement of the health of the worker; less illness, less absences, less alcoholism, increased efficiency and output, and time saving, greater contentment, and better relaxation for recreation, and lastly, better midday ventilation of the workshop. It is readily seen that the benefits derived from an industrial restaurant have a direct influence in lessening tuberculosis by better, clean, wholesome food, properly prepared, the relief of fatigue by relaxation, and the change of air. Minimum wage, like the raising and lowering of the window sash, determines the fall of the tuberculosis rate. No one can work without health, which depends largely upon food, shelter, and relaxation. The solution of this great economical problem is fundamentally the solution of the eradication of the great white plague.

The public health center, like the dispensary, will evolve into a greater and more adequate service for community needs and requirements. It represents an advanced mile post in community medicine and constitutes the salvation of the tuberculous patient in industry, for it has the advantages of consolidating preventive and curative medicine, and of rendering to the community health, education, social, hospital and dispensary services.

In the present daylight of knowledge, tuberculosis as an occupational disease must be saddled upon the employer, when medical supervision, with periodical physical examinations, is not prescribed, and when such industrial health hazards as dust, dampness, devitalized air, darkness, fatigue, unsafe temperatures, avoidable poisons and infections are disregarded. Industrial responsibility is not ended with providing mechanical exhaust, heating, and ventilating apparatus, a pure water supply and the various modern sanitary measures, such as cuspidors, toilet and wash room necessities. The employer likewise has a paternalistic obligation in offering his employees the advantages of a modern cafeteria, recreational activities, and the application of public health nursing in the home of his artisans. His reward will be demonstrated on the credit side of the ledger by better efficiency, fewer absentees, and labor turnover, reduced taxation, and the satisfying knowledge that the reaper of the Great White Plague has been foiled in his path.

Of the 185 cases of occupational diseases reported to the Ohio State Industrial Commission since the section of the Workmen's Compensation Act covering this class of disability became operative last August, a large proportion were due to dermatitis, there being 113 cases of this. Lead poisoning was next with 34; anilin poisoning 3; carbon dioxid 3; anthrax, arsenic, and zinc poisoning, 1 each. Nineteen cases attributed to rheumatism and similar ailments have been disallowed as occupational disease claims.

Dr. W. G. Smillie, the director of the Institute of Hygiene of the Medical School of Saö Paulo, has instituted a graduate course in public health for physicians engaged in sanitary work.

Cooperation Keynote of Fatigue Elimination*

Committee Aims to Force Realization of Loss and Waste Caused by Fatigue

By FRANK B. GILBRETH, LL.D., Chairman, International Committee for the Elimination of Fatigue in Industry of the Society of Industrial Engineers, Montclair, N. J.

THE most important development in waste elimination during the past six months has been along the lines of closer cooperation with other bodies interested in allied lines of work. The Eye Sight Conservation Council of America, of which the eminent past president of the Society of Industrial Engineers, Mr. L. W. Wallace, is president, realizing the close affiliation between their work and that of the International Committee for Elimination of Fatigue in Industry, invited the chairman in February to deliver a paper on Eye Conservation in the Industries. This paper dealt with the subject of fatigue, and as a mark of appreciation of the importance of fatigue investigation, the Council is now reprinting the paper as a separate pamphlet in order to arouse interest among its members in the subject of fatigue as it directly concerns the eyes.

The National Safety Council is issuing a book on "Practical Methods for Reducing Fatigue" and has asked for the cooperation of the Committee in this work. The chairman and the business manager of the Society of Industrial Engineers have forwarded such material as available to those in charge of this work.

The American Posture League continues to cooperate most fully, having representatives of the League on the Committee and including representatives of the Committee upon its advisory committee. In this way, reduplication of effort is prevented and closer cooperation assured.

New members of the Committee are, notably, Dr. Louis I. Harris of the department of health of the City of New York, Dr. Tech Petr Ruzek of the Psychotechnic Institute of Masaryks Academie of Labor, and Dr. Ing Stan Spacek of the Czecho-Slovakia Legation at Washington, all of whom are deeply interested in the subject and can wield an enormous interest in the fields of fatigue elimination.

The general emphasis on the elimination of fatigue to be seen in advertising everywhere we believe is largely the result of our fatigue elimination campaign.

Recommendations for future development focalize interest on two points—first, the necessity for increasing the number of members on the Committee and thus broadening the field of influence. As has been before indicated, we should have a representative in every university and college in the country, in every sister society, in every field of industry. The American Society of Mechanical Engineers has appointed Professor George H. Shephard of Purdue University chairman of a sub-committee of the management division of that Society to represent it on the fatigue committee of this Society. He has appointed the members of his Committee to cooperate with us. It is desired that a representative from every society and college interested in waste elimination become a member.

Fatigue Movement Abroad

The second important point which is vital at this time is that fatigue elimination should be seriously considered in all efforts towards standardization now going on throughout the world. The chairman has during the last months visited England, Holland, Germany, and Czecho-Slovakia and has been in touch with those at the head of standardization work in other European countries and also in our own country.

At the request of Mr. Spacek, Technical Advisor to Mr. Stepanek, minister of Czecho-Slovakia, the chairman visited Prague in Czecho-Slovakia and, as a result, secured Dr. Ruzek, the eminent director of the Institute of Labor, as a member of the fatigue committee. The purposes of the fatigue elimination committee were explained to Dr. T. G. Masaryk, the President of the Republic, who is vitally interested in all undertakings for the improvement of conditions that make for more comfort and more efficiency of the worker. The chairman also conferred not only with President Klir but with representative members of the Institute Masaryk, that most remarkable cooperative undertaking where all those interested in industry from every standpoint confer on industrial problems and outline solutions which must prove adequate because they have the approval and enlist the cooperation of all.

Progress in all countries along lines of standardization of material and equipment and along publication and acceptance of specifications is most satisfactory. There is, however, both abroad and in this country a great lack of standardization of practice. Perhaps this standardization may be looked for in the work of the new Division of Simplified Practice of the Department of Commerce which is just outlined and undertaking its work.

If waste elimination in the field of fatigue is to make greatest progress, it is essential that those engaged in this work become acquainted with and interested in the work of the Committee and include fatigue elimination standards among the other standards to be set down. In our report of October 7, 1921, we urged the establishment of such fatigue elimination standards. This is a natural work for the Committee to undertake. However, if we wish best to cooperate with others engaged in standardization, we must bring the subject of fatigue elimination immediately to their attention, in order to insure that all research bodies have this in mind in making their investigations, and that the forthcoming standards of practice, which are essential to development and inperative at this time, may cover the subject of fatigue.

The Committee proposes to bring to the attention of the entire world the unnecessary discomfort, discontent, ill health, inefficiency, loss of production, and all other kinds of wastes that result from unnecessary fatigue. The loss in productivity alone is more than 20 cents a day for each. The correctness of this sum is admitted by all students of economics and industrial engineering. When multiplied by 300 days a year and 40,000,000 workers, the loss competes in amount with the financial debt of our allies to us, and will, incidentally, be much easier to collect.

*Progress report read before American Society of Industrial Engineers, Detroit, Mich., April, 1922.

A Work Chair Embodying Comfort and Utility

THE problem of sitting posture is an individual health problem which easily becomes an industrial one when the bodily ills, discomfort, and inefficiency of a large number of employees are found to be dependent on inadequate seating facilities. A work chair which embodies comfort, utility, simplicity in construction, and low cost is described by two articles, one in *Safety* by Arthur B. Emmons, 2nd., M.D., Director Harvard Mercantile Health Work, and the second of which Dr. Emmons is co-author with Joel E. Goldthwait, M.D., orthopedic surgeon of Boston, in the *Journal of Industrial Hygiene*.

To meet the requirements of bodily support, that is, that the weight of the body should be supported by a seat directly under the body and not at the mid-thigh, and that the small of the back should be properly supported, the work chair was designed. It possesses a shallow seat and a back curved forward to fit the small of the back, and is of rigid construction in order to give support and steadiness. This chair has proved to be a generally useful work chair and considerable search has failed to discover any other which approaches it in essential requirements. Adjustable chairs may still be necessary for special work, such as that of the telephone switchboard operator, but adjustability is not an unmixed good. It nearly always results in unsteadiness and the chair is rarely correctly adjusted to the individual. Moreover, adjustability requires frequent repairs and results in a short-lived chair.

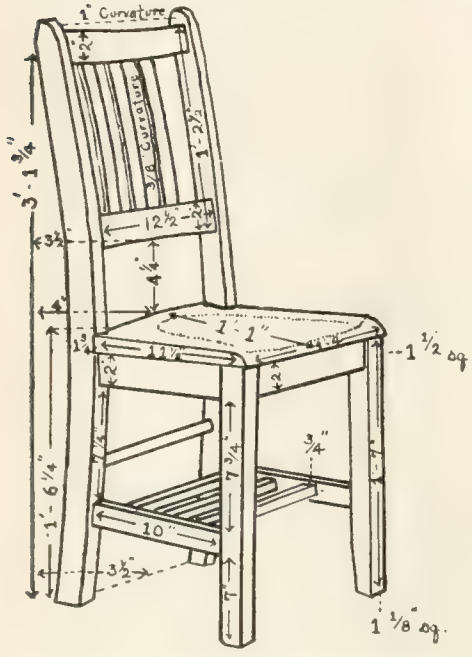
The work chair was especially designed by a committee composed of Dr. Joel E. Goldthwait, chairman, Dr. Lloyd T. Brown, and Mr. Ford, of Massachusetts Institute of Technology, to meet the needs of a large technical education institution. It has proved entirely satisfactory when used at a table or desk. Another similar chair, with arm rest added, was constructed for ordinary class room or lecture work. The sturdy construction of the chair is testified to by the fact that several hundred have been in constant use for five years and are reported to have received no repairs. Inspection of them at the present time shows that the glue has given way and needs replacement in about one in five to ten chairs; otherwise the chairs are in good condition.

The chair has had industrial use in a large clothing factory where many machines are used at tables. The personnel director of this establishment reports as follows:

We have found that the four different heights of the chair (17", 18", 19", 20") we use have been sufficient for all but one or two exceptional cases. The chair has worn very well indeed and is giving great satisfaction to the workers. As for its preventing fatigue, I cannot furnish statistics on this matter, but I do know that any chair which supports the back as this one does and which does not interfere with circulation must have a great deal to do with reducing the fatigue of our workers. I have used this chair myself ever since we first introduced it in the factory, and I wouldn't use any other as a desk chair. I feel that it has helped me to maintain correct posture, and that I am very much more comfortable in it than in any chair I have used as a work chair.

A survey of the twenty-five stores subscribing to the Harvard Mercantile work shows that one of the most glaring examples of bad sitting posture is usually seen in the alteration room where women on kitchen chairs bend over work placed on their knees. Marking rooms disclose many girls sitting on stools, benches, or discarded chairs manifestly furnishing neither support or comfort. In the main office stenographers sit on adjustable chairs not adjusted. Oftentimes the leather cushion is raised to the height of the stenographer's shoulders rather than supporting the small of the back. High, backless stools at old-fashioned ledged desks are no longer excusable for suitable chairs with backs and footrests will make a good working arrangement. The deep swiveled arm chair at the executive's desk results in compression of the abdomen when he leans over his desk. Thus it is seen that the chairs used in many phases of mercantile work encourage the bending from the waist rather than the hips and offer little support. The faults are obvious, the mechanics simple. The remedy is not applied usually because of lack of attention, and because no one is responsible for their correction.

Another aid to correct posture in office is the sloping desk, which now has been discarded to a large extent. A slight slope prevents considerable



The fool-proof "work chair" showing dimensions.

The work chair.

Correct working posture on the work-chair.

unnecessary forward bending.

Experience shows that in store work probably between 80 and 90 per cent of the people can be well adapted to their work with the "work chair." This chair, not being adjustable, is foolproof—a very necessary quality. In most stores little thought and less careful planning has been spent on correct seating, and observations in industry disclose the same condition. It is believed, however, that use of a simple foolproof chair is a first step in the right direction.

It has been suggested that the Training Department, with the approval of the physician, adjust to working conditions each new worker and each one transferred. The establishment of such a system is believed to be the most important step in correct mercantile and industrial seating.

To guide the Training Department in this adjustment of the worker to his work the following rules are suggested. (1) Start with the height of desk (usually 30 inches) or table. (2) Subtract the *sitting height* of the individual from his desk height to determine the height of the work chair seat. This may best be done by trying the worker in chairs of different height. (3) If the feet do not rest comfortably on the floor without the thighs resting heavily on the front of the chair seat, provide a foot rest or brace. Rarely is a foot rest satisfactory if attached to the chair. Usually it may be attached to the desk or table. (4) The light coming over the left shoulder is best for general work. Avoid light from directly in front which reflects glare from the work, and also light from the right which casts the shadow of the hand on the work. Light from above is also excellent, especially if reflected from the ceiling, as in totally indirect lighting.

"One chair manufacturer told me," says Dr. Emmons, "that his system of doing business was to learn how many chairs of each kind were sold during the past year and then to make a proportional number of each of those kinds for the present year's business. Thus the faults of traditional seating are perpetuated all about us. The greatest change of breaking this tradition is through the industrial physician who is responsible for the health of a large group, whose technical training enables him to form his own judgments and whose administrative power enables him to carry through his conviction into correct seating."

Correct resting posture in the work chair.

The Posture of the Worker

ONE of the leading factors contributing to fatigue in industry is conceded to be the posture of the worker, the question of posture resolving itself into the way the worker sits at his machine as an operator, or works at the table as a finisher, or stands at the pressing board as a presser, states Theresa Wolfson in reporting through the pages of The *Survey* on an intensive campaign for improvement of posture in the Ladies' garment shops in New York City. The Joint Board of Sanitary Control of the industry has nearly complete the results of a study of two hundred representative shops.

As long ago as 1915, Dr. J. W. Scherewschevsky of the United States Public Health Service presented definite facts concerning the diseases of the garment worker attributable to bad posture; yet of the eighty-five thousand workers in the trade, few have had their postural defects rectified, or have benefited at all by the recommendations made in this study. The present survey has maintained constant contact with the workers in the shops and has brought out the seriousness of improper seating, poor illumination, and bad ventilation, as well as the importance of shop sanitation.

By its presentation of the special problems of posture as applied to the operator, the finisher, and the presser and of remedies which are possible through forethought and a small expenditure the Joint Board of Sanitary Control hopes to create an intelligent understanding of the seating problem in industry. It is not to be wondered at that the faulty seating promotes drooping shoulders, interference with the proper functions of the lungs, hernia, weakened abdominal muscles, and flat feet. Bad posture means fatigue and fatigue means inefficiency. A part of the program aims to bring out the fact that it is a matter of good business on the part of the manufacturer to secure good illumination and comfortable seats for the workers.

In addition to the "List of Publications" issued by the International Labor Office, the Industrial Health Section will issue at regular intervals lists containing information dealing with industrial hygiene.

The Year's Progress in the Reduction of Noise*

Low's Audiometer Aids in Determining Standard Limit of Permissible Noise

By PROF. HENRY J. SPOONER, M.I.Mech.E., F.G.S., Etc., Member of the International Committee of Industrial Fatigue, Director of the Polytechnic School of Engineering, London, England

THE progress of the reduction of noise has been marked in the past year by the interest taken by the public press in the subject, by observation of Fatigue Elimination Day in schools and colleges, and by the devising of instruments with which to measure noise.

Not only has the technical press devoted space and argument to the reduction of noise, notable articles appearing in *The Lancet* and *The Engineer*, but the lay newspapers, among them The London *Times* and the London *Evening News*, have lent their influence to the movement.

On December 5, the fifth annual Fatigue Elimination Day was celebrated. Students submitted essays on fatigue elimination, typical extracts from which are set forth here showing how engineering colleges may usefully cooperate in forwarding the movement.

Students' Essays on Noise

(1) "The word 'noise' is, in all probability, derived from the Latin '*noxa*'—hurt, '*nocere*' to hurt. Whoever introduced the word noise into our language must certainly have had a sounder knowledge of acoustics than many business men and engineers of today. It is a great loss to the industry of this country that so few of our manufacturers, judging from recent visits to works, fully grasp the fact that noise affects and, within limits, hurts any workers within appreciable range of its occurrence."

(2) "The effects of noises on the health of the average person vary according to the type of noise. Persistent hammering, such as occurs in a boiler shop, will in time produce partial deafness, as will also the continuous roar of the traffic in a big city. Intermittent knocking if kept up long enough will produce a state of nervous tension bordering on collapse. The distinction between continuous and intermittent noise is seen in the case of a designer or calculator who can work next to a machine shop and get so used to the whirl of machinery as to become practically oblivious to it, but if the same man were, for example, transferred to a room where a great deal of talking and whistling were going on, his plight would be pitiable. In the latter case, the effort required for him to concentrate on his work, very quickly produces a state of great mental fatigue, or reduces him to a state of great irritability."

(3) "The chief causes of noise in aircraft are: (a) engines; (b) propeller; and (c) external wires. (a) *Engines.*—To eliminate the noise from these, I suggest that they be enclosed in a sound-proof department, the proofing being interlined with some fire-resisting substance. In the bigger types the exhausts might be used to generate heat for the comfort of pilot and passengers at high altitudes. (b) *Propellers.*—I suggest for these a highly efficient low-speed high-pitched propeller coupled to a geared down engine, and a coned centre to prevent whistling of securing bolts. (c) *External Bracing Wires.*—Eliminate the cause, i. e., use no wires but small drawn-steel tubes, or better, use cantilever wings. For under carriages, centre sections, etc., use steel tubes with stream lined fairings."

(4) "Although most noises are detrimental to efficiency there are occasions on which noise serves an extremely useful purpose. A past acquaintance of mine previous to the war was an engineer in charge of a power house which provided power for a small township in British Columbia. As the finances of the concern only permitted the services of one man, he frequently had to sleep in the engine room. In time he became so inured to the sound of his machinery that he could sleep quite comfortably in the engine room, but, if the slightest irregularity in the noise occurred, it aroused him instantly, and he was easily able to remedy any defect which he was able to locate by means of an unusual sound.

In concluding my Chadwick lecture in November last year, I ventured to suggest that there should be a standard limit of permissible noise beyond which it should be considered a public nuisance. Before this could be practicable, an instrument must be available for measuring noise. Professor A. M. Low, D. Sc., has so improved his audiometer that apparently it goes a long way in the direction of solving the problem. The following is a brief description of it supplied by Professor Low:

The instrument itself consists in the main of four different components: (1) a sound horn; (2) a diaphragm; (3) a mirror; (4) a photographic recording chart; (5) an electric damping device; (6) the new low vibrometer. The mirror is connected to the diaphragm in such a manner that the smallest vibration of the diaphragm produces a corresponding deflection of the mirror, which in its turn causes a spot of light, the source of which is a powerful electric bulb, to be moved to a lesser or a greater extent upon a piece of sensitive photographic paper. This paper is, in its turn, simultaneously moving in the direction at right angles to the direction of the oscillation of light, and the result, when the paper is developed, is an undulating curve traced by the spot of light and varying according to the nature and intensity of the sound which it is desired to register.

In the case of an apparatus fitted with the photographic attachment, the paper is automatically developed in the tank under the machine. In the case of an instrument not fitted with this attachment, a ground glass screen enables the spot of light to be watched by the eye, a scale upon the screen demonstrating clearly the maximum deflection of the spot.

By means of a rotating mirror, part of the wave can be examined before the record is taken photographically. The apparatus is so arranged that the development of the negatives takes place automatically and the sensitised paper is drawn from the instrument carrying the record without any skill being necessary. A particularly important part of the scheme is that the apparatus can be fitted with a syn-

*Report on the progress of the movement for the reduction of noise read at the spring convention of the American Society of Industrial Engineers at Detroit, Mich., April, 1922.

chronously operating valve for use in research work, in order to expose the diaphragm for a predetermined period; any particular note being recurrently produced.

The importance of such an instrument for use in the scientific production of any form of machinery that is to be silent-running is obvious, as it is absolutely essential that the various sounds produced should be recorded and analyzed. They form practically the only means available for detecting the cause of the trouble, the detection of which at present is more or less a matter of guesswork.

The New Low Vibrometer

The new low vibrometer has been devised principally for the purpose of effecting comparison between good and bad springing of motor vehicles and of the vibrations caused by the machinery. The new form of the instrument is extremely simple and enables the operator to obtain an exact comparison, not only between the comfort of two different cars, but also between the amount of vibration produced by different crankshafts or by reciprocating parts.

The vibrometer consists mainly of a drum operated by an ordinary clockwork governed motor. Against this drum rests a small glass stylus fed from an inkwell and attached to the end of a spring which is weighted to a different periodicity. The contact of the pen against the paper is regulated by a roller three-sixteenths of an inch in diameter, and the period of the spring can also be varied by altering this to the effective length. This is arranged by sliding the point of support, all the operations being controlled by means of suitably arranged thumb screws. The whole apparatus is enclosed in a glass case which can be lifted off for replacing the paper on the drum in a few moments.

In use, a datum line is made by allowing the drum to revolve before the apparatus is put on the vibrating engine bed, or side car, as the case may be, and the drum is then set to make one complete revolution. The pen can be traversed across the chart if necessary in order to increase the length of the trial.

By means of the vibrometer, not only can the displacement of a car body or railway coach be measured, but the rate of acceleration vertically produced by the bump can be worked out without any complicated gyroscopic apparatus.

For very sensitive work a photographic and damped apparatus of this type is essential, as also for the study of high speed vibration, as it can be conveniently used in conjunction with a synchronous cinematograph, but for ordinary comparisons between the comfort of cars and the amount of engine vibration produced, the vibrometer in its most simple form is sufficiently accurate.

Laws Relating to Noise

I do not know how a public or common nuisance is defined in American law, but in English law it is such that it appears hardly to embrace noise. On the other hand, in English law, a private nuisance, is "an act or omission which causes inconvenience or damage to a private person." So we may assume that anyone annoyed or inconvenienced by objectionable noise can call upon the local medical officer of health to take action to get relief. Probably the laws relating to public or common nuisances in both countries will have to be modified to embrace noise unmistakably before any sensible relief from its damaging and wasteful effects can be hoped for.

The fact that the ordinary healthy public finds that a certain amount of noise has a stimulating effect probably explains why our noisy road and rail traffic has been allowed to become such a great nuisance in all our large towns and cities, but, after all, the engineers concerned are to blame, as noise caused directly or indirectly by machinery denotes bad engineering and waste. Until it is more generally recognized that all noises mean loss of energy in some form, we are not likely to get much relief from the intolerable and injurious nuisance. Indeed, it can safely be submitted that the appalling noise of the machinery of our electric trains and trams in particular is a disgrace to a great profession and should not be allowed to continue. These remarks also apply to a large proportion of the motor vehicles, particularly the commercial ones, running on our roads and loudly calling for the attention of the engineering pathologist.

Trouble is usually due to some form of unbalanced movement which is sure to cause noise at high speeds. Faulty gears and worn bearings are also sure to be noisy. But every chief designer worth his salt can devise machinery for almost any purpose that will be practically silent, if he pays attention to such matters and makes the best use of the advances that have been made in workshop practice and processes in recent years, helical gears, and spiral bevel gears, etc., which, if mounted on shafts of sufficient stiffness, are silent running.

In modern practice, the watchwords should be: (1) scientific design from the standpoint of noise, substituting pressure for impact wherever practicable, remembering that the hall-mark of good design is silent running; (2) accurate construction, and efficient lubrication; (3) observant efficient maintenance on the principle that "a stitch in time saves nine."

In looking back upon the gradual evolution of things that matter, I venture to believe that good, if slow, progress has been made in the cause of waste reduction in this, perhaps its most important aspect since the Spring Convention in Milwaukee of April, 1921, and I am full of hope for future developments.

Gas Masks for Crude Oil Vapors

The Bureau of Mines usually recommends the hose mask for protection against vapors of crude oil. This consists of a Tissot type face-piece that allows breathing through the nose, attached to a non-collapsible rubber hose extending to pure air. Such a mask is very useful in tanks where distances from fresh air are short, but would have limited service in mines. A man can breathe through 100 to 125 feet of hose without undue exertion; with longer lengths it is necessary to force the air to him. Gas masks of the army type having canisters filled with activated charcoal give protection for short periods of time, 5 to 10 minutes, against oil vapors not exceeding 1 or 2 per cent in air. The gas mask is essentially a filter for air containing small admixtures of irrespirable gases, but otherwise normal. Unless it is positively known that the concentrations of vapors do not exceed 2 per cent, gas masks must not be used. Self-contained oxygen breathing apparatus having breathing bags of thin rubberized fabric may be used for periods up to ten minutes in high concentrations of vapors, but thereafter gasoline and petroleum vapors penetrate the rubber. Breathing apparatus made with heavy rubber breathing bags 1/16 inch or more in thickness may be used for periods up to two hours. After use, the breathing bags should be aired in fresh air for at least six hours to rid them of absorbed vapors before further use. The Bureau of Mines is now developing breathing apparatus in which the bag consists of a material impervious to petroleum vapors.

Efficiency Applied to the Efficiency Expert

Man of Affairs Often Errs by Not Applying Health Rules to Own Life

By P. K. HOLMES, M.D., Department of Hygiene and Public Health, University of Kentucky, Lexington, Ky.

EFFICIENCY is the magic word today caught up by every tongue. It is used most frequently and effectively in the business and industrial world. The head of the great business concern has to conduct the affairs of his great concern along approved lines of efficiency. There must be centralization of control; union to facilitate advantageous buying; stimulation toward increased production; methods for utilization of bi-products; constant improvement in the quality and quantity of goods turned out; lessening of waste; elimination of useless and time-consuming steps and muscular efforts; the application of scientifically worked out rest periods to increase production and decrease fatigue; shortening of hours and increase of pay to make employees more contented; the introduction of safety devices; and many other things for the sake of efficiency.

The whole keynote here is production,—efficiency. The vision is focused only upon the product that is turned out, the "thing," and in the final analysis the money which the "thing" represents. In order to increase production, mental and physical efficiency on the part of the employee must incidentally be increased.

The conception of such a well organized plan of efficient production and the capacity for putting it into operation comes from the master mind only. It is almost unbelievable to think that the master mind that conceives of high standards of efficiency fails completely to apply the same principles to the body containing the brain which initiated the original idea. In other words, our men of big business fail at the crucial point and apply the principles to the creation and not to the creator. It is safe to say that if our busy business men applied these principles to themselves they would be able through better health to plan even more efficiently for others.

This plan of business efficiency will not permit of men who have to operate delicate and expensive machinery becoming incapacitated through the effects of alcohol poisoning. Quite a few heads of business concerns today are refusing to employ men or boys who use tobacco because indications point to a probable loss of working efficiency as a result of its use. It is probable that the person who largely depends upon coffee as an artificial stimulant to carry him through his day's work is placing himself on a lower level of efficiency. The man with weak flabby muscles and shortness of wind cannot long meet the demands of manual labor. The man who is being continually poisoned as a result of chronic constipation which results in loss of mental keenness and physical endurance cannot efficiently sell the products created by the concern which employs him. The man who, through keeping late hours, over-indulgence in aimless amusement, excessive stimulation of the emotions, overdraws upon his bank account of nervous force and is thus incapacitated for doing his best.

There is much talk of keeping the employees of an industry efficient. To this end they are enjoined to lead a normal healthful life. The wise employer realizes that dependence on artificial stimulants by his working force, late hours, and misspent recreation time diminish their labor output.

But while urging health habits upon his employees, the captain of industry often flagrantly violates all of them. Narcotics and stimulants, late hours, overwork, and little or no exercise, make him old before his time and he becomes a prey to degenerative disease. The efficiency expert who would apply to others principles of longevity would do well to follow them himself.

These are some of the fundamental principles of business efficiency and repeated disregard of them by the employee means eventual loss of his position. But who is going to discharge the employer himself for falling below the standards of efficiency which he has set up for others? There is nobody to tell him directly that he will lose his "job" if he does not obey the "rules," but his business competitors, who sometimes will get this new conception, will force him out of his "job" in the keen struggle for business supremacy.

The average business man is probably not as clear a thinker and as enduring a worker by virtue of his natural endowments and observance of the laws of health as the average man he employs. The average man of big business does not have time to live according to the laws of health. Theoretically he thinks this important but practically he shows that it is not. The result is that he shortens his working life here, but lengthens it in the possible life elsewhere.

The average man of big affairs is one who has not paid much attention to the rules of health since he left college, if he happens to be a college man. He may have gone through four years of strenuous athletics there, but has done nothing of that nature since. His big powerful heart has gradually deteriorated into a smaller and rather flabby muscle,—a power engine of much less working capacity. His lungs, because of lack of normal exercise, have diminished in breathing capacity and power, but have increased in susceptibility to disease. His muscles are smaller and weaker because they have had comparatively little use. What would happen if he had to run half a mile at a fair pace to meet an emergency?

In the first place, he could not run that distance, but if he did attempt it, he would be exhausted and perhaps seriously injured or possibly killed. There is no physiological reason why a man of forty or forty-five should not be able safely and with positive benefit to run a half mile or a mile at moderate speed. How many men can walk upstairs at a brisk pace to their office on the eighth floor without being out of breath for the next quarter of an hour? He is very likely twenty or thirty pounds over weight, not of muscle or nerve or gland tissue,

but of fat, and fat is an almost lifeless tissue, of no value in such excess, but a burden to carry as a pack on the shoulders of a civilian going about his daily work would be. Further, it is an indication of senility or premature old age and is so considered by the life insurance companies. Again the organs of elimination have not been kept up to the highest point of efficiency and the waste accumulations and poisons are not properly got rid of; he is fatigued and tired when he should not be. He who sits down all day in a luxuriously equipped office is often more tired at night than the employee who has been working on his feet all day in the machine shop or packing room. His appetite is poor; plain, coarse, wholesome food does not appeal to him. He must be tempted by delicacies or awakened by alcoholic stimulants. Any slight excess in eating causes a "hold-up" in the digestive machinery. There is no margin of safety there.

He is more susceptible to disease because the body defences are unable to cope with invading disease germs. Because of nervous tension, resulting from great responsibility, he has to restore his nervous balance and comfort through the use of artificial stimulants. He starts the day's work on a caffein stimulation, gets up an appetite for dinner through a cocktail; is soothed from the irritations of the day's work through nicotine; gets rid of the body waste products through the use of a cathartic; chases business cares away by amusement at the theatre, and is finally lulled to sleep until the next day through the kindly action of a sedative. Efficient living does not necessitate such a daily program.

According to statistics, the death rate in America is higher for the middle period of life, which is around fifty, than in any other great nation in the world and this is more particularly true of men who carry great responsibility. Unfortunately this is the period of greatest usefulness.

The diseases which are peculiar to men of this age in America are called the "diseases of degeneration," some of which are heart disease, hardening of the arteries, apoplexy, Bright's disease, or chronic inflammation of the kidneys, and diabetes. It is a matter of observation that an increasingly larger number of American men of prominence die as a result of one or more of these so-called "diseases of degeneration."

We do not as yet know the cause of these diseases. There is no one cause; they are probably due to a combination of causes. Some which the indicator points to are: lack of sufficient vigorous physical exercise, over-eating, use of stimulants such as coffee, tea, tobacco and alcohol; excessive social obligations, and great professional and business responsibilities and irregularity of the functioning of the ductless glands.

It is astounding to think that the efficiency expert is so inefficient when applying his principles to himself. This is one of those strange human inconsistencies. Most men are content to live on a low level of mental and physical efficiency. If we are able to get out of bed, take our three regular meals and do our day's work, we say we are well, perfectly healthy. That is existence, not health. Our standard of health should include bounding vitality and endurance, a spirit of optimism and invincibility resulting from efficiently working bodily organs. It should mean perfect digestion and elimination, capacity for restful sleep, an irresistible desire for muscular expression in the form of enjoyable athletic recreation or its equivalent, a contented and well poised mind, and a joy in just being alive.

If a man is mentally efficient enough to create systems of efficiency in his business he should be efficient enough to apply them to his own life and follow them.

Happily there is an increasingly larger number of men who are learning to live efficiently by taking time to play golf, attend gymnasium classes in the club or Y. M. C. A. work gardens, eat more rationally, and in general to obey the simple and obvious laws of health that any man with ordinary horse-sense could find time to obey.

ASSOCIATION LETTER

By WILLIAM ALFRED SAWYER, Secretary

THE Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons held in St. Louis, May 22 and 23, 1922, was more largely attended and far broader and more spirited in its discussions than any previous conference of the Association. The addresses offered and the more important discussions will be passed upon for publication as early as may be and the policies determined upon in executive session will soon begin to reflect themselves in new verve and broader activities. The official personnel of the Association remains unchanged.

The membership drive has met with success and has brought into the Association many men who are doing excellent work in the industrial field. The final results of the campaign will be described in the July issue of the *Journal*.

The generous response from the members regarding the writing of letters to prospective new members was most encouraging. The Secretary has received copies of a great many of these letters; the spirit shown in them gives assurance for the future upbuilding of the Association.

Bills went forward for the 1922-23 dues early in May and response has been rapid. It is hoped by the Secretary's office that none of the members will long delay in giving attention to this important matter.

The following are new members: Dr. J. M. Barnett, Albany, Ga.; Dr. D. F. Armstrong, Auburn, N. Y.; Dr. G. F. Greeneleaf, Alton, Ill.; Dr. Richard Kemel, Cartagena, Columbia, S. A.; Dr. R. W. Burnett, D'Lo, Miss.; Dr. E. M. McCarty, Rumford, Maine; Dr. K. B. Steele, New York City; Dr. W. F. McNary, E. St. Louis, Ill.; Dr. O. C. Klug, E. St. Louis, Ill.; Dr. A. N. Dykes, Columbus, Ga.; Dr. R. W. Angevine, Rochester, N. Y.; Dr. F. G. Barr, National Cash Register Company, Dayton, O.; Dr. S. R. Light, The Upjohn Co., Kalamazoo, Michigan; Dr. S. R. Downing, Oakland, Cal; Dr. C. C. Scott, Princeton, Ill.; Dr. P. J. Bowman, Ft. Bragg, Cal.; Dr. L. St. J. Hely, Richmond, Cal.

Information is in the hands of the secretary regarding a woman physician of excellent qualifications, a graduate of the Woman's Medical College of Philadelphia, 1920, who desires to enter industrial work; also regarding a trained industrial first-aid man, 39 years of age, with six years' experience, who has been connected with the first-aid department of a chemical plant, has considerable medical and pharmaceutical knowledge, who desires a new connection. The secretary's office desires to serve as a clearing house of information of this character.

Report on Traumatic and Industrial Hernia*

THE Report of the special committee of the Medical and Surgical Section of the American Railway Association on traumatic and industrial hernia is of great interest to all industrial surgeons. The subject, since the introduction of the Workmen's Compensation laws, has become a matter of great medical-legal importance.

The Committee divides the subject of traumatic hernia into three groups. The first group is made up of those cases in which there is direct injury by violence to the abdominal wall. These are the true traumatic hernias. Here the muscles are torn away by means of some sharp object and a hernia speedily results. None of the Committee had ever seen such a case but had heard of one resulting after an injury to the inguinal ring by the horn of a bull. The Committee, therefore, dismissed this group without further consideration. The third group is composed of those cases in which a hernia has developed in the presence of a weakness of the musculature but where no congenital pre-formed hernial sac existed. This type is also rare. The large group is the second which has been termed the industrial hernia or, according to the French, the hernia of effort, and it is this group which the Committee considers.

Hernia was formerly supposed to result when a trauma produced a sudden increase in intra-abdominal pressure which would force out the peritoneal sac and its contents. Since operation has become more and more common for the radical cure of hernia, it has been shown that hernia almost never is produced in this manner. It has been shown that a sac is pre-formed and that a hernia has developed gradually. It is true that the patient may have his attention first called to his hernia when a sudden increase in intra-abdominal pressure causes the entrance into the sac of a great amount of omentum or intestine. This fact has been advanced by Pellatin and Cloquet in the eighteenth century, but "Russell of Australia by his patient investigations forced us to conclude that practically all herniae are of congenital origin due to an open pouch of the peritoneum which has existed since birth." In support of this contention that hernia is almost always congenital, the Committee refers to the work of many authors. "MacCready, the greatest English authority on hernia, states that inguinal hernia is never due to an accident or single increase in intra-abdominal pressure."

"Graser, one of the highest German authorities, states that a hernia complete in all its parts can never arise at a moment of accident or by a single increase in the intra-abdominal tension be it ever so great." Moschovitz of New York not only claimed that true traumatic hernia is exceedingly rare but that when it did occur it occurred usually elsewhere than at the normal hernial openings. Mock, although he claims to have seen five cases of true traumatic hernia, states that this is a very rare condition.

Traumatic Hernia Rare

The Committee reports a case in which a hernia developed following an injury and in which the patient honestly believed that the hernia was the direct result thereof. "A man of twenty-five years of age, an employee of the New York Central Railroad Company, with a history of never having had any swelling whatever in the region of the hernial canal, shortly after heavy lifting noticed a swelling in the right inguinal region. He came to the emergency hospital where the attending physician found a well marked inguinal hernia the size of a small egg in the right inguinal region extending well into the canal and upper scrotum. In the opinion of the surgeon this was one of the most definite cases in his experience pointing to a casual relationship between strain and hernia, and it might have been so regarded had not the patient consented to operation." At operation there was found "a pre-formed sac undoubtedly of congenital origin extending well into the upper scrotum two and one-half inches long and two inches broad, considerably thickened, firmly adherent to the overlying cremaster muscle. The nature of the sac clearly proved it to be of congenital origin, and in all probability the hernia had existed for months, or possibly years, although the patient may never have recognized it until the time of the unusual strain when a somewhat larger amount of omentum or bowel forced through the sac causing slight pain which first called his attention to the hernia."

It is a common occurrence in the New York Hospital for Ruptured and Crippled that a patient applies for an operation for hernia on one side entirely ignorant of the fact that he has almost as large or even as large a hernia on the other side.

In short, the Committee is convinced that "hernia is practically always due, (1), to the presence of a pre-formed sac or open pouch of peritoneum which in the inguinal variety follows the testis in its descent into the scrotum which point has failed to close in the normal way; and, (2), to the presence of structural weakness in the neighborhood of the hernial orifices due to poorly developed muscles or faschi. . . . The main point that cannot be emphasized too strongly is that hernia is never the result of a single strain or single intra-abdominal pressure due to any of the causes mentioned,—lifting, strain, etc., etc.†

"Although medical authorities agree as to the etiology of hernia, the decisions rendered before arbitration boards have not always been in accord. These boards have, as Sheen claims, "in the mass of ill-understood technicalities followed the lines of least resistance, have given judgment in favor of the working man—the *post hoc ergo propter hoc* view being naturally the existing one." Many of the State compensation boards are adopting definite policies along the lines of the latest medical teaching. Although there are no published records showing the results of the New York State compensation boards, the Board regards traumatic hernia as extremely rare."

However, there has been a trend of late in the other direction following a decision for the plaintiff in a case in which a hernia was supposed to have followed the strain of lifting. The State Industrial Commissions of Nevada and California have adopted rulings which coincide most nearly with the present day medical teaching.

The Committee closes its report with the following recommendations: (1) Render proper compensation for

*Annals of Surgery, Vol. LXXV, No. 4, 467, April, 1922. Traumatic and Industrial Hernia. Report of the Special Committee of the Medical Section of the American Railway Association. William B. Coley, M.D., New York (Chairman), Chief Surgeon, New York Central R. R. Southgate Leigh, M.D., Norfolk, Va., Chief Surgeon, Virginia Railway. John B. Walker, M.D., New York, Consulting Surgeon, Pennsylvania R. R. C. W. Hopkins, M.D., Chicago, Chief Surgeon, Chicago & Northwestern R. R. J. A. Hutchison, M.D., Montreal, Chief Surgeon, Grand Trunk Railway.

†On the other hand it is a cumulative effect of a great number of strains spread over a considerable period of time.

all cases of true traumatic hernia due to direct violence. Such cases are so few as to be practically negligible. (2) Make a physical examination of all applicants for position in industry no matter in what capacity. Such examination will determine the fact whether or not a hernia was present at the time of examination. (3) Any case of hernia developing in the course of duty incident to the man's daily work should be treated as a disease due to special anatomical weakness on the part of the individual for which the company is in no way responsible. If it is considered wise under certain circumstances to recognize any moral responsibility, let it be on the economic or humanitarian basis. The moral obligation should be understood to be strictly limited to such employees who have been found free from hernia at such time of previous physical examination.

Recent Compensation Decisions

WHERE a defendant railroad company by contracts required its employees to pay fifty cents a month as hospital fees, agreeing to furnish them with medical and surgical treatment in case of injury or illness, and while there was no evidence of profit there was none to show that the fund was administered as a trust, or that the employees acquired an interest therein, the jury's finding that they were not charitable institutions and that the defendant was responsible for negligence was justified according to a decision by the District Court of Appeal of California. A rehearing was denied by the Supreme Court, February 20, 1922.—*Bowman v. Southern Pacific Co.*, 204 *Pac.* 403.

THE Supreme Court of Georgia, February 14, 1922 upheld the constitutionality of the act regulating the occupation of barbers. The law does not violate either the equal protection or uniform operation provisions of the constitution. It has held that the state residents cannot attack the constitutionality of a statute on the ground that it discriminates against nonresident barbers.—*Cooper v. Rollins*, 110 *S. E.* 726.

A STATUTE which requires an employer to provide washrooms for employees after 30 per cent or more of the employees have decided by vote to ask and notify the employer to provide such washroom has been held unconstitutional as a delegation of legislative power in violation of the constitution. This decision was made by the Kentucky Court of Appeals, February 28, 1922.

The court states that the attempt is made to compel the owners and operators of certain businesses to build washhouses as a police regulation of the state. This is done not at the instance of the Legislature but at the instance of the employees. "The Legislature does not care at all about it, but leaves the matter entirely to the employees of each mine or factory falling within a described class."—*Commonwealth v. Beaver Dam Coal Co.*, 237 *S. W.* 1087.

THE Supreme Court of Illinois, February 22, 1922 held that the presence of pre-existing disease is not in itself sufficient to warrant a denial of compensation where such disease is shown not to have been of a character to disable the claimant. The facts are given in the opinion of the court:

The evidence in this record shows that Gulzter earned $1,400 per year as loader, but, owing to the pre-existing disease, he could not load as many cars as a strong man. His earning power was depreciated by the disease, but was not destroyed. The award in this case was based upon that depreciated earning capacity. Plaintiff in error is therefore not required to pay compensation for the effects of the disease as it existed prior to the injury. The award in this case is sustained by the record.

THE Supreme Court of Louisiana, January 2, 1922, decided that where an injured employee 59 years old refused to submit to an operation to remove the broken parts of his knee and which would require an anesthetic and resort to a hospital as a charity patient, his refusal was not unreasonable and did not defeat recovery for his disability under the Workmen's Compensation Act as amended.

The facts of the case are stated in the opinion of the Court. The plaintiff during his employment in the defendant's ice cream factory suffered an injury to his knee. The disability was not contested but it is said not to be attributable to the accident but to the refusal to allow an operation, "which would probably have cured him, and certainly relieved him of all pain and thus restored his ability to work." The patient hesitated about the operation. The surgeon's advice "that the operation would not be dangerous to life or health, and that the chances of success, in which event the use of the limb would be completely restored, and of non-success, in which event the limb would become ankylosed and rigid, were about even. Plaintiff would have had to be anesthetized; and being without means would have had to resort to the charity hospital as a charity patient which appeared to him in the light of a humiliation."

The Court said that in view of the age of the plaintiff and the seriousness of the operation which would require the administration of an anesthetic and the prejudice against the charity hospital, the refusal on the part of the plaintiff to undergo the operation was not unreasonable. "It was not the result of caprice, but of the natural dread of a surgical operation, always attended with more or less risk, especially after a certain age." Award upheld.

WHERE a valve on a steam boiler blew out and an employee ascended the ladder and closed the valve, descended and went to a window, then walked out of a door for a few steps, staggered and fell dead, the death was the result of a pre-existing disease of the heart and was not compensable as a traumatic "injury by accident" within the Workmen's Compensation Act defining compensable accidents, according to a decision of the Kentucky Court of Appeals, February 10, 1922.

Ruseh was the employee of the Louisville Water Company which company was operated under the provisions of the Workmen's Compensation Act. The widow filed a claim for compensation and the Workmen's Compensation Board found that: "(1) The death of the decedent was not the result of traumatic injury by accident, but was due to pre-existing disease of the heart. (2) Over excitement and hurry at a critical moment taken in connection with a diseased heart caused the heart to fail." The decision of the Board was upheld.—*Rusch v. Lansville Water Co.*, 237 *S. W.* 389.

A Platform for the Industrial Physician

INDUSTRIAL medicine as a specialty has many proponents and many opponents. Industrial medical practice has many phases and exhibits many moot questions which have not yet been fairly formulated. There are, however, in the industrial medical group many virile thinkers who are organizing the field and are stating the case of industrial medicine in terms that are understood and acceptable both to industry and to the medical profession. Successive conferences mark orderly progression toward standardization and toward the correlation of industrial medicine with other specialties and with the field of public health. A very definite expression of this tendency is found in "A Platform for the Industrial Physician," under the signature of Otto P. Geier, M. D., director, Employees' Service, Cincinnati Milling Machine Company, Cincinnati, O., which appears in a recent issue of The *Survey*:

(1) We are living in an industrial country, in the era of "The Iron Man" with the resulting problems of health and physical efficiency.

(2) The industrial physician is the humanitarian answer of medicine to the health needs of all groups in this era.

(3) A physician devoting his whole time to the health problems of industry will deliver more units of useful surgery, of diagnosis, of curative care, of preventive medicine, of educational hygiene both collective and individual, than can possibly occur in the private individualistic practice.

(4) Placing the physician in industry, in stores, in banks, etc., makes health a part of the work-a-day life—adds it to the cost of doing business—puts health matters on a business basis.

(5) Consultation for diagnosis is encouraged by the industrial physician to a greater degree than by the practitioner because the industrial physician's failures stare him in the face daily; his uncured cases are advertised to all of the group, including management.

(6) The industrial physician sees the human machine under a load test. He sees it gradually get out of alignment and makes repairs before a complete breakdown occurs. Before and after an illness he adjusts the load to the ability of the weakened human machine.

(7) In the supervising of as few as 5 per cent of those gainfully employed the industrial physician perhaps makes more physical examinations per year where no illness is involved than are made on the other 95 per cent of the workers.

(8) Teaching the breadwinner the worthwhileness of personal hygiene, prompt attention to minor injury and illness, and the value of physical examinations means that more money will be cheerfully spent on these same facilities for the members of the family for whom he or she provides.

(9) In case of preventable illness or accidents under a system of industrial medicine the worker blames himself for the loss of wages and knows his employer is being robbed of production. In the other case, he usually curses his "bad luck" and feels that the physician in private practice is fattening on his God-sent misfortunes.

(10) Industrial medicine is one of the safe, sane stopgaps between whatever is unsatisfactory in the present system of medicine and that much heralded state medicine. It supplies the economical advantages of the organized treatment of large groups but preserves the real values of the individualistic competitive system of practice. Our statecraft is of such low grade that we should desist from overloading our Ship of State until the present political leaks are stopped.

(11) Industrial medicine, now supervising perhaps four million workers and employing the part or whole time of possibly two thousand physicians, has developed in spite of the indifference of our medical leaders toward this new specialty and has attracted many good men despite the patronizing attitude of the profession at large.

(12) The sanitarian should be the strongest proponent of the extension of industrial medicine, which is applying preventive medicine, collective and individual, in its most intense form—compelling periodic physical examination and demonstrating the value of the prompt seeking of medical attention and early diagnosis. Sanitation and the detection of contagious diseases and of sources of occupational disease add further argument to the value of the industrial physician's work, to say nothing of his ability to furnish reliable morbidity statistics covering large groups.

(13) If mortality and morbidity are to be reduced to the minimum it must be through the more direct appeal to individuals to observe the laws of personal hygiene, to avoid quacks and nostrums, and to seek the physician's aid early. If such interest be placed on an economic basis, as in industry, this program will be definitely accelerated.

Dr. Winslow to Safety Institute

THE safety movement is not only humanitarian, but highly practical as well and the broadened scope of its activities in the promotion of human welfare is indicated by the addition to its personnel in the capacity of health supervisor of Dr. C.-E. A. Winslow, pre-eminently an educator, and one of the ablest scientists in the public health field.

Dr. C.-E. A. Winslow becomes health supervisor of the Safety Institute of America.

Outlining the immediate plans of the Institute, Dr. Winslow states that activities will first of all be concerned with the general problem of factory sanitation. The health and efficiency of the employee depend, however, upon much more than environmental sanitation and so a second group of problems of almost as vital importance is that which concerns the personal hygiene of the worker, his posture and exercise, his nutrition, his working and resting hours and all the other aspects of the management of the living machine. Since the human body is not created as a perfect machine, we must add to environmental sanitation and personal hygiene a third set of problems, involving the provision of medical and nursing care for the treatment of injuries and the early detection and preventive treatment of disease in its incipient and curable stages through systematic physical examination.

The Institute may properly aid in the solution of the problems outlined above by the following methods, to be worked out step by step as opportunity and resources permit.

(1) Our primary purpose is to develop in New York City a permanent national museum of safety, in which one section should be devoted to industrial hygiene and sanitation. This section will include exhibits dealing with lighting, ventilation, dust removal, factory seating and the like, with the elements of personal hygiene and with the organization of medical and nursing service. The visual instruction may be carried a step further by means of mobile exhibits and graphic illustrative material which can be carried from factory to factory.

(2) The teaching function of the museum should naturally be expanded through articles in *Safety* and through special bulletins and leaflets which would serve at the same time as reference material for members of the Institute and for the enlightenment of those who are unable to participate closely in its work.

(3) The message should be carried directly to the factories by the personal service of members of our staff. It is planned to give due recognition to sanitation and health in the system of organized lectures, consultations and inspections which is a part of the general program of the Institute. This service should be of inestimable value to the smaller industrial plants of New York City. A large plant can maintain its own staff for this purpose but the only salvation for the smaller factory is through some such form of co-operative service.

(4) Finally, it may well be possible in the future for the Institute to develop special training courses for industrial sanitarians, nurses and other specialists.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

School Architecture From a Health Viewpoint

New Type of Building Provides for Physical Well-Being of Children

By W. B. ITTNER, Architect and School Specialist, St. Louis, Mo.

A FEW years ago a co-worker interested in educational and social problems spent quite a little time at a remarkably well-equipped recreational center in one of our large cities. Here were indoor and outdoor gymnasiums, pools, showers, workshops of various kinds, and gardens. To him this kind of school, (for at first he mistook it for such) synonymous with free and controlled activity in a sanitary, wholesome, and inviting environment, was a revelation. He wondered why he had not heard of it before, why it seemed to be resting in apparent obscurity. He determined to visit the place as often as possible for a season. At every visit he was more and more impressed with the glory of it, with the beauty of childhood and youth under natural conditions. How spontaneous these boys and girls were! How alert, active, alive, and happy! Surely this school had an important message for the whole country.

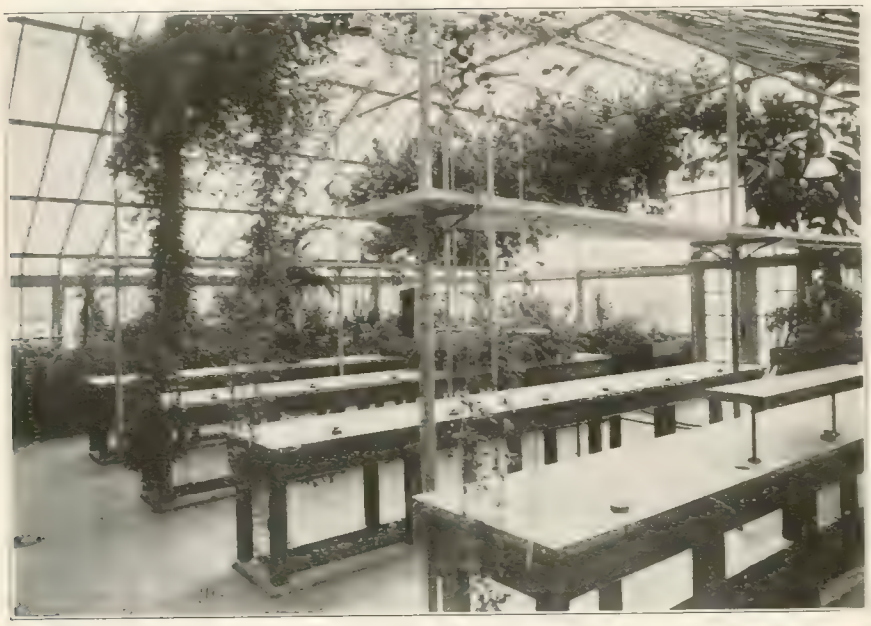
But he, like the children, was not permitted to enjoy this child garden long. The first day of school came. The children vanished into a big brick prison-like building just across the street which he hadn't even noticed before. He went up to it, then inside. The darkness in the corridors blinded him. Could it be that the superabundance of joyous child life which he had witnessed and generously absorbed was now compressed behind closed doors? Yes, there they were in rows and seats, all poring over books or looking shyly up at a teacher who was talking to them. The air in the rooms staggered him; the unnatural stillness palled on him. Were these the children he had played with across the street? Evidently so, for he recognized their faces and some of them dared to smile at him.

"When do you take the children across the street to their school?" he asked a little timidly of one of the teachers who was energetically erasing the blackboard in a manner that caused a chalk-dust cloud. "What do you mean?" she returned almost brusquely. "That is no school; it isn't even part of the public school system, and it would be better if it were somewhere else for nine months because it's awfully hard to keep the children away from there. They just want to play all the time. It is no light job to get them to settle down to work after a summer of idleness over there."

Luckily this happened several years ago. Today it is an easy matter for any one to decide which of the two agencies referred to above was the real educational agency. All that the recreational center required to change it into the right sort of present day school was a set of class rooms. Practically all the other facilities were there.

Perhaps nothing indicates the rapid progress in educational evolution

Broad, well lighted corridors are a safeguard [illegible] in most modern schools prevent the spread of communicable [illegible]



A plant laboratory connecting directly with outdoor gardens is a feature of one of the better type of modern school buildings.

more emphatically than the insistent demands for a change of environment, the result of a change in fundamentals. Not so long ago gymnasiums and extensive playgrounds for elementary schools were considered extravagant, out of place. High school students, of course, had them long before the younger children. They were accustomed to a few luxuries while elementary school children were compelled to abide by necessities. Swimming pools and showers in any kind of school would have staggered taxpayers; and if any sort of propaganda had been developed among school children for combating enemies to health and community welfare, the school was criticized for wasting time and not attending strictly to business.

School as Health Agency

Now gymnasiums and showers are becoming as common as classrooms. Even our elementary schools are installing swimming pools; and any community building on a restricted site so that full playground accommodations cannot be secured is considered a back-number. Then there is the school auditorium, nature study, science laboratories and gardens. These facilities in the school afford excellent means for the accumulation and dissemination of health facts.

It is only necessary to enumerate a few of the actual health activities of the public schools to convince even the ultra-conservative that the school people, administrators, teachers, and parents are launching a vigorous offensive against the cause of physical deterioration as well as carrying on aggressive measures to safeguard and promote the health of all children. (A.) Special studies are being made of the best lighting, heating, ventilation, sanitation, and safety of schools. (B.) Wholesome, sanitary, sunny and cheerful environments are being demanded for work, study, and playquarters. (C.) School operating schedules are being devised so that pupils may move about occasionally. Constant sitting in a school seat in a crowded school room is deleterious to the health of growing boys and girls. (D.) The movable type of equipment which has freed children from the rigid atmosphere of the old-time school room and encouraged free movement is another step toward better health. (E.) The attempt to make school life more like real living has resulted in a variety of activities, a variety of interests, consequently, a balanced life. (F.) The daily playground and gymnasium activities as part of curricular activities together with the various recreational attractions offered by the school almost continuously aid immeasurably in raising the health standard among girls and boys, and in forming habits for the wholesome and worthy use of out-of-school time. (G.) The periodic physical examinations, the special examinations, and the corrective measures developed to aid individuals to overcome physical deficiencies all tend to give to every child a full and natural development and indicate, beyond a doubt, that children today may go to school to get well. (H.) The preventive measures taken for checking the spread of contagion and exterminating the sources of health dangers are not only safeguards to the school, but to the entire community.

All of these activities and innumerable other related ones indicate at once that there has come a change in the fundamental considerations in education. Health has become an educational objective.

Why Education Has Changed

The more immediate causes for the change in fundamentals and vital considerations of our public education are easily detected. Social and industrial

Swimming pools are now installed even in elementary schools. They are recommended only when their proper installation and sanitary upkeep are assured.

changes have forced changes in educational thought and practice. Centralization of industry has caused fundamental changes in the living and working conditions of our great commonwealth. It has changed the home and created new community demands. Scientific experiments, educational surveys, and research have developed a more scientific attitude toward educational procedure. We know that children cannot learn unless they are in a proper condition to learn. We know now that physical, mental, and moral health is a fundamental in the learning process. A small number of progressive school communities in the country have been living agencies in exhibiting the limitations of the school of yesterday when applied to needs of today. By far the most pronounced cause in educational awakening has been the shock of the world war's revelations. The painful statistics regarding the physical defects of our drafted men constituted the most effective weapon in compelling the attention of the entire nation to preventive and remedial measures in early life.

Plants Plan for Health

Every school environment should be a model for health. Sanitation, good lighting, airiness and cheerfulness of surroundings are the eternal watchwords of every real school architect. The proper location of the school, an adequate site, and an efficient building plan ought to result in a physical environment that fairly radiates health and wholesomeness.

Movable class room equipment for the younger children gives opportunity for unlimited freedom of movement. The equipment in this room consists of small maple topped tables and oak chairs in two sizes.

No specific part of the school plant is more inviting, more stimulating to the youth of all ages, than large and well equipped outdoor play quarters. Perhaps no other factor in the school can do more to safeguard and promote physical and moral health. Certainly, playgrounds are the most natural enemies of delinquency and truancy, and no other part of the school plant attracts as powerfully during out of school hours.

Five acres is considered a minimum site for medium sized schools. This acreage will usually provide sufficient space for the school building, the playground, gardens, and lawns. Of this space, two acres at least are required for physical education such as ballgames and the free and competitive exercises. High schools require more space than elementary schools, but large sites are desirable for all schools wherever possible.

Health activities within the building usually include gymnasium exercises, physical examinations, medical inspection, and instruction in personal and community hygiene. The scope of these activities varies all the way from the schools where practically all the work is developed by one physical director to the large complete schools where many specialists, such as physical examiners, nurses, gymnasium, swimming, and athletic instructors are employed, and the physical activities diversified so that the varying needs of differentiated groups may be met.

Two gymnasiums, one for girls and one for boys, showers, dressing-rooms, medical, and consultation rooms are essential to a comprehensive physical education program. In large schools, corrective gymnasiums may be necessary, and swimming pools, if properly installed and carefully supervised, always constitute distinct assets. Experience has proved that 50′ x 80′ is a normal floorspace for gymnasiums. In the matter of location, the unvarying requirement is that gymnasiums must receive maximum light and ventilation. This is scarcely possible if the location is be-

Covered roof gymnasiums, equipped with toilets and drinking fountains, constitute an aid to all varieties of open air activities with children. The floor of this one is covered with battleship linoleum.

low grade or if low-ceilinged basement rooms are used. Gymnasium floors should be above grade. Windows on three sides are desirable. Maximum ventilation and light are thus assured. Ordinarily, gymnasiums should be brought to the playground level and lead directly to the playgrounds. Separate shower, locker, and dressing rooms for boys and girls are, of course, necessary. The number to be installed and the arrangement depends almost wholly on the number of students to be accommodated at a time.

Clinics, medical, and instructors' rooms need to be closely correlated and should open directly to the gymnasiums. They may lead directly or indirectly to the playground. Maximum sunlight and air are as essential to these rooms as to gymnasiums and pools.

Roof gymnasiums are made readily available by roofing the area over the regular gymnasiums. When properly arranged and equipped with drinking fountains and toilets, they become valuable for all types of physical welfare work and for open-air class work.

Aside from the general school environment, and the physical education group, the workshops and laboratories may also be considered health promotion facilities. The activities in the various workshops develop and train more particularly the eye, the arms, the hand, and many of the smaller muscles. It is granted, of course, that the motor activities in the workshops also have another distinct purpose, but the fact that they serve for health assures them a prominent place in the health curriculum. Such activities, for instance, as woodwork, clay modeling, forge, foundry, sheet metal work, nature study, horticulture, gardening and animal husbandry are examples of some of the motor activities that minister definitely to health, aside from their own intrinsic value.

Drinking fountains and toilets in schools may become a deadly menace to health. Maximum light and ventilation must accompany the proper installation and distribution of toilets. A special ventilating fan operated independently of the general ventilating system is frequently installed and is always recommended.

The medium-sized auditorium of 600 to 900 capacity is recommended for schools since it functions most effectively for practical use. A central location upon the first or main floor is usually the most satisfactory both from an educational and administrative viewpoint. Unlimited natural lighting and ventilation are secured by this location.

The indoor and outdoor physical education activities together with the supplementary health work of shops, laboratories, and class rooms may be unified and crystalized in the school auditorium. The movies, health demonstrations, and special visits from the city health corps and others constitute an impetus to the actual physical education work in the school which is scarcely possible in other ways. The auditorium furnishing space for student congregation, is the natural center in the school for the various discussions on personal and community hygiene, for the organization of health-promoting student-bodies, and for distribution of all health literature.

The Child and the Convalescent Home

By A. LEVINSON, Chicago, Ill.

IF HUMAN life were so regulated that each one could live in comfort, the need for convalescent homes would not exist. The healthy child would stay at home and the sick child would stay a short while at the hospital and then return home. Under present conditions, however, convalescent homes are a necessity, and the best one can do is to learn of the indications for sending children to those homes and the means of so regulating these institutions that they will do most good and will not become a source of hardship on the physicians and parents.

It should be the endeavor of every physician to keep the child in the hospital for as short a time as possible. It is well known, however, that a drop in temperature does not mean the recovery of the patient. As often pointed out, convalescence may last one day and it may last a lifetime. Acute conditions are usually marked by a slow convalescence. The atmosphere in the hospital, however, is not very compatible with convalescence. Besides, keeping convalescent children in the hospital would congest the hospital and crowd out acute cases that have great need of the hospital. It is, therefore, important to send the child to a convalescent home for two or three weeks in cases where the illness has been acute, where recovery is expected in a short while, and where home conditions are unfavorable. Subacute and chronic conditions do not belong in the convalescent home although unfortunately in many convalescent homes the chronic cases outnumber the convalescents. One type of subacute disease, however, belongs in the convalescent home and that is subacute endocarditis. If there is anything to be done for heart sufferers, it is very early in the disease, after the first or second attack and before decompensation takes place. Aside from all drugs, rest is very essential. The rest, however, must be complete and prolonged. Convalescent homes may be of great service in such cases. Children who have passed through an attack of acute endocarditis leave the hospital under the impression that they are entirely well. On their return home they very often forget the ailment and become very active. It is, therefore, necessary to look for some means of restraint, and since it is hardly possible for a hospital to keep such cases more than a few weeks at a time, it is proper to send these cases to convalescent homes where they can be watched and regulated according to instructions from physicians. However, once a case of endocarditis becomes chronic, and goes through more than two or three attacks or decompensation, a convalescent home is not the ideal place for it. If the child cannot be taken care of at its own home, it should be placed in a special home for cardiacs or in a home for chronic invalids.

The question often arises as to what to do with cases of chorea. These cases, as a rule, do not do well at their own home because they cannot be controlled by their parents. They do fairly well at the hospital where they get complete rest. The question, however, remains whether they are acute enough for a hospital. It seems that chorea may just as well be treated in a convalescent home as in a hospital. This method of treatment would relieve the congestion in many children's hospitals and at the same time would lessen the

expense of treatment and would afford the patient just as good, if not better, chances for recovery.

Each patient entering a convalescent home should have a complete diagnosis, a thorough examination, and specific rules for treatment, either medical or non-medical. Sending a child to a convalescent home to rest without thorough knowledge on the part of the caretaker, whether she be nurse or lay person, as to the diagnosis and method of treatment or supervision is an additional expense and a burden on the community. Unless the convalescent home is in close contact and works in cooperation with a hospital, it does not fulfill its function and does more harm than good.

Each convalescent home should be under the direct supervision of a physician. The ideal way should be to have a resident physician at the home. Next to that, daily rounds made by a physician will answer the purpose. It is unfortunate that many convalescent homes in this country are being "supervised" by men of reputation who simply add this position to the list of many and varied other posts of honor. A convalescent home needs a fair proportion of the time of an energetic physician. It is preferable to have a trained nurse in charge of a convalescent home. Occasionally, however, a lay person will do just as well. Whoever takes care of the home must, however, have a thorough knowledge of children and must have the interests of children at heart.

Contagion is one of the problems that confront every convalescent home. Wherever children come together contagion develops unless strict means are taken to prevent it. It, therefore, behooves everyone concerned to use all means available to prevent contagion. Separate utensils for each child, boiled linen, sufficient air, frequent examination, and isolation of all ill patients will go a long way to prevent contagion.

Every convalescent home for children should have a teacher of occupational therapy so that the children can pass their time contentedly. The occupation should, however, be prescribed for each child individually. The same applies to exercise. Every convalescent child needs some exercise but this must be suited to the child's needs and physical ability, otherwise a dilatation of the heart or a rapture of an unhealed wound may result.

Food constitutes a problem of paramount importance in every convalescent home. Not every child will eat everything given him, nor may every child have everything it desires. It is, therefore, necessary to have each child's diet prescribed by the physician in attendance. Some times a child will not eat certain foods given him at the convalescent home because he is not used to eating these at his own home. I know of children who refuse vegetables at hospitals or convalescent homes because they seldom get them in their own homes. In such cases the nurse in attendance will perform great service by insisting that children at the convalescent home eat the proper food, thereby training the children for the future.

The practice of sending a child to a convalescent home where there are also adults is not very commendable. Older people like to recount their many ailments and troubles. Children, especially convalescent children, should not be subjected to such morbid influences. On the contrary, every effort should be made to see that the child forgets all about his sickness. Therefore, the ideal place for the convalescent child is the convalescent home that caters especially to children.

Just as it is important not to keep children too long a time in a hospital, it is very important to limit the stay of children at a convalescent home. As soon as a child has recovered sufficiently so that there is no danger of an immediate recurrence of the disease or a dilatation of heart, he should be sent home. It might be wise to instruct the mother while the child is at the convalescent home in methods of feeding, of resting, of medication, of general discipline.

In order to be of full service to the community, the convalescent home should be more than a rest cottage. It should be a center of instruction for mothers and other relatives on the best methods of how to take care of a child who has recently been ill, and above all, how to keep the child well.

Food Value of White Flour

The Food Reform League in a communication to the London *Lancet* seeks to direct more attention to the mineral content of oatmeal and whole wheat meal and to the dangers arising from the milling of cereals. The energy requirements of the body vary from 2,750 to 5,500 calories per day according to the work of the individual. They are mainly satisfied by fat and carbohydrate in the proportion of 90 g. of fat to 550 g. of carbohydrate. Carbohydrate is chiefly consumed in the form of starch from white wheat flour in bread, cakes, and pastry. The average quantity eaten per day may be reckoned as two pounds of bread, which furnish two thousand of the necessary calories. Proteins, salts, and vitamins are the other essential constituents of the diet. The protein and salt requirements are easily satisfied by the ordinary mixed food, but such food may not supply the vitamin requirement. Like proteins, definite amounts of each vitamin are required daily to keep the body in perfect health, and yet the amounts have not been determined.

The germ and outer portions of the cereal grains supply B-vitamin, the absence of which from the food leads to beri-beri, as has been clearly demonstrated both in the case of polished rice and white wheaten flour. Seeds of grains and legumes are the natural foods richest in B-vitamin. The milling processes remove the B-factor from the grain, and its loss is not easily made good in the diet of the poorer classes. Flesh and fish are poor in respect to this vitamin, eggs are good, and so are most fruits and vegetables; yeast contains this vitamin in considerable amount.

The addition of yeast to flour in the making of bread does not compensate for the vitamin lost in milling. No attempt is made to compensate for it in making cakes, etc., for which baking powder is used. Milk is variable in its vitamin content, and can hardly be considered as rich in B-factor. The loss of B-factor in the grains will only be replaced if eggs and large quantities of vegetables and fruits are eaten.

As B-vitamin is a highly important constituent of the food, and is only amply supplied by the germ and outer parts of cereal grains, health is not promoted by the preference of the population for white flour. Whiteness does not represent goodness. The people should be encouraged to eat whole-meal flour, so that they can get a proper supply of B-vitamin. Highly milled flour is also deprived of good protein, A-vitamin, and salts. It is of special importance that patent cereal foods for infants should be prepared from the whole grain.

In a State-wide effort to inform the general public more fully how to preserve mental health and prevent mental disease, the Mental Hygiene Committee of the New York State Charities Aid Association has secured the voluntary services of thirty-one noted psychiatrists and other authorities on mental hygiene for public addresses. The Association which has carried on a State-wide campaign for the prevention and earlier treatment of mental disorders for some years through this Committee, celebrated its fiftieth anniversary on May 11th. Stanley P. Davis is Executive Secretary of the Committee.

David A. Mountain Home for Aged Physicians

A Project for the Care of Those Grown Old in the Service of Their Fellowmen

By JOHN A. LAPP, L.L.D., Chicago.

THIS country has been slow to realize the importance of providing sufficiently for those who, having given their lives for the welfare and advancement of mankind, are in their later years incapacitated and unable to perform the duties of their vocation, perhaps even to provide for their own needs. War pensions have been granted to soldiers and sailors; civil pensions are given to superannuated Federal employees; teachers, policemen, and firemen are pensioned in several states and cities as are also civil employees in some cities. Ministers of certain denominations are provided for in old age and a few industries provide pensions for aged employees.

Proposed model for the David A. Mountain Memorial Home. Plans for the erection of buildings contemplate an expenditure of $250,000 as a beginning.

The bulk of people, however, face old age without the certainty of means whereby they must sustain life properly after their powers fail. Even those who have some property are harassed when incapacitated through age by the thought that it may not last them to the end of life if the end should be postponed for long.

To no body of people does old age bring greater need than to the physicians who have served long and faithfully, giving of their time and money to aid the poor and near poor, weakening their physical powers by excessive work and exposure, and compelled to bear heavy expenses to keep up the standards of professional life. Many break down in what should be the prime of life while many others reach old age without adequate means of support. The people think well of their doctors but they realize all too little the economic burdens which keep generous hearted men from accummulating resources against the time when through accident, disease, or old age they are no longer able to serve.

It is a happy announcement to the physicians of the country and their friends that the indifference of the world toward the aged physician is about to be softened by the establishment of a great memorial home where physicians who are aged, incapacitated, or infirm may pass their final years in comfort, surrounded by all of the means of contentment and physical care that their grateful friends may provide and in the companionship of others of their own professional interests and of libraries and laboratories where they may keep up their interests in their life's vocation.

Located in Western New York

In the valley of the Genessee river in western New York where the romance of Indian life left an imperishable impress stands the little village of Caneadea near the site of a former Indian village from which it received its name. Among the pioneers of this valley was David Mountain who developed out of the forests a splendid farm on the slopes of the hill two miles from the village. Here he raised a large family and inspired them all with the zeal for higher education. The whole resources of the newly developed land were spent in their education. For fifteen years this farm supported from one to three of the family in college. Six members graduated from higher institutions of learning. Two of them became physicians and surgeons of distinction, and these two have now taken to heart the

Golf links and tennis courts will offer recreation.

The David A. Mountain farm in western New York, which has been presented by the two physician sons, Drs. William H. and Stephen V. Mountain, as a home for aged and infirm physicians, the same to be a memorial to their father, David A. Mountain

problem of their fellow practitioners and have opened the way to a hopeful future for those who are aged and infirm. The old home farm of two hundred acres which has been developed by modern methods and equipment to a high state of cultivation has been presented by the two physician sons, Dr. William H. and Stephen V. Mountain of Olean, New York, founders of the Mountain Clinic, as a home for aged and infirm physicians, the same to be a memorial to their father and to be known as the David A. Mountain Memorial.

The gift has been made to an organization called the Physician's Home, Inc., of which Dr. Robert T. Morris is president; Dr. Ralph Waldo, vice president; Dr. Silas F. Hallock, 36 East 65th Street, New York City, secretary; and Dr. Albert G. Weed, 152 West 57th Street, New York City, treasurer. In addition the Board of Directors includes Drs. Warren Coleman, Max Einhorn, Wolff Freudenthal, Francis Huber, and Stephen V. Mountain.

It is the intention of the Board of Directors to occupy the farm house at once and to build a modern home as soon as possible. Plans for the erection of buildings contemplate an expenditure of $250,000 as a beginning. Under the present tentative plans, there will be two large dormitories in one of which will be installed laboratories for experimental purposes. Golf links, tennis courts, and croquet grounds are being laid out and there will be a complete gymnasium including swimming tanks, bowling alleys, and billiard rooms. Provision has been made by the Board of Supervisors of Allegany county in which the institution is located for the construction of a paved road from the village to the farm. Many additional features will develop as the plan grows.

In addition to the dormitories and sanitarium, the Board of Directors may find it advantageous to build small cottages where physicians and their wives may live by themselves and yet have the advantages of the facilities of the institution.

David A. Mountain and family. This picture was taken in 1888.

It will doubtless happen, too, that many physicians who have small amounts of money may desire to purchase with it the privilege of care for the rest of their lives, thus making their small savings permanently provide for their care throughout old age. The home will offer also a resting place for doctors whose health may have become broken in their work. It will combine, therefore, not only the features of an institutional home but also of a sanitarium.

Meeting, as it undoubtedly will, a great social need, this institution may be expected to grow to large proportions. Many developments, unthought of at present, will take place bringing nearer and nearer the ideal of social security to those who have done so much to make others secure.

Eyesight of School Children

The results of testing 22,000 children as to the prevalence of defective eyesight are published in the annual report of Dr. H. P. Newsholme on the public elementary schools in the North Riding of Yorkshire. Percentages are given by The *Lancet* as follows:

Of the boys 8 per cent and of the girls 8.5 per cent were shown to have grossly defective vision.

The chief points brought out were (1) an increase of the proportions of serious defects as the children advance in school; (2) the prevalence is greater among girls; (3) visual defects increase in prevalence with increasing urbanization.

Genesee River where the trout are plentiful

Exterminating Flies a Public Health Duty

By W. DWIGHT PIERCE, Ph.D., Managing Director, Biological Department, Mineral, Metal and By-Products Company, San Mateo, Cal.

THERE is no task more important assigned to those who govern a city than that of preserving the health of the community, but it must be remembered that no public servant can carry out his duties without the full and hearty support of those who put him in office. Public health in municipalities is a very difficult thing to maintain because it depends upon the personal actions of every individual sojourning in the city or even passing through it. When persons realize to the utmost that their personal actions at each minute in the day have their bearing upon the health of those about them, and that one bit of carelessness on their part may, through no desire and even without their knowledge, become the starting point of an epidemic that will snuff out many lives, they will begin to rearrange their actions.

Citizens cannot expect to have health inspectors forever dogging their steps to see that their actions are sanitary, nor can they expect that they will be able to look into their backyards every so often, for the public treasury will not bear the expense of complete sanitary policing of a big city. It is incumbent upon them as individuals, therefore, to do their part right, to keep their yards free from trash and filth, to keep their homes sanitary and well ventilated, to protect the public when they are ill from being infected by their actions, and in no wise to commit nuisances which would imperil the lives of others. These are their duties as individuals.

If they are vendors of food to the public, it is their sacred duty to preserve that food as long as it is in their care, free from all contamination. They can do no less and do their duty. No honest store keeper will wait for the food inspector to visit his place and force him to obey the laws. As a matter of fact, there are many things which the store keeper should do to protect his food that there are no laws to force him to do except the law of society which impels us to do unto others as we would have them do unto us.

It cannot be said that at the present moment the food vendors of our cities are doing their whole duty in preserving food from contamination while it is in their care. Possibly this is because they do not know the facts concerning contamination. Personal observations in many stores seem to indicate a complete indifference to one of the biggest causes of food contamination in the cities of America, the common fly.

One would think that all that has been written about the fly would have resulted in some attention being paid by store keepers to this pest, but apparently the subject has not yet been put to them in such a way that it has struck home. The subject is one that does not permit of delicate handling, and not until the full enormity of the fly's crime sinks into the public conscience will full results be obtained.

There is no fouler visitor to the home than the *Musca domestica*. They are denizens of the filthiest disease centers of the city and should not be permitted to visit decent homes, nor should stores where these filthy customers are allowed to enter and sample those same foods be patronized. No fly ever touches food without leaving some form of filth on that food.

House Fly Breeds in Filth

The house fly lays its eggs in filth, that is in garbage, manure, and excreta. The fly itself feeds on all these things and sputum as well. All filth contains the germs of decay or disease. The fly maggots hatch from the eggs in the midst of germs and they constantly pass multitudes of germs through their bodies. The passage of germs through these living bodies intensifies their virility and increases their longevity, although some of them are digested by the body fluid of the larvae. Many of the germs taken into the body of the maggot remain there and thrive in this perfect medium until the maggot has passed through its development into a perfect fly. This fly may carry for days and weeks the germs it took up as a larva in its body. A fly may wander as far as fifteen miles in a few days. When a fly feeds, it often moistens its food with liquid regurgitated from its crop. This liquid vomit contains germs. It also drops a speck of excrement which is alive with germs. If a speck of excrement or vomit happens to fall on moist food, it finds a good culture medium for the germs. For this reason milk is a dangerous typhoid carrier. The flies bring the infection from filth to the dairy and the milk man carries it throughout the town to his customers. The specks may even be placed on supposedly clean dishes which a little later are used as food containers and thus contaminate the food placed in them.

Every time this germ-carrying fly lays eggs, it deposits in a film around these eggs some of the germs. The eggs may be laid in supposedly harmless substances free from disease organisms, but the harmlessness is no longer, for the germs thus deposited will be passed through the bodies of all the maggots breeding in this substance and when they become flies they in their turn will distribute them to new foci until finally contact is established with human food and a so-called sporadic case of disease breaks out with no apparent connections with any known case.

All this means only that the house fly is the principal agent for carrying disease germs from filth to the food of man. The fly must be suppressed at its source.

To this end an adequate and regular removal of garbage and manure and a thorough system of sewage with no exceptions are necessary. If sewage pipe systems are inadvisable or impossible, then there must be installed a septic tank system, by groups of dwellings, or for each separate house. Rural communities are more dangerous to a town sometimes than the conditions within the town. In other words the sanitation of every house in a county should be under the strict supervision of the county health officer. We live in a day when it is recognized that the misbehavior of a single individual may imperil the lives of a community.

The commissioner of health of Greenville County has been authorized to establish a traveling dental clinic to operate for three months for the benefit of the school children in the rural districts of the country. This is the first clinic of its type in South Carolina. A number of county fair associations in Illinois have applied to the State Department of Public Health for assistance in conducting Better Baby Conferences in connection with fairs to be held next fall.

High School Cafeterias Fill Dietary Need

By LAURA C. FAWCETT, Director of the High School Lunch Department, East Orange Public Schools, East Orange, N. J.

THERE is sweeping over the United States today a gratifying interest in the health and nutrition of children. We have been, as a nation, too slow in realizing the importance of this phase of our national health. One way in which this interest has been manifested is the effort which progressive school systems are making to bring health education into the public schools. This health education, though still somewhat vague in its aims and methods, has brought to light one important fact, namely that many school children frequently from comfortable, middle-class homes are undernourished.

The cold lunch brought from home or purchased from the corner bakery has been partly responsible for this condition for when good school lunch rooms have been installed, a marked improvement has been shown in the health of the boys and girls.

Over the entire country, school cafeterias under trained dietitians have made splendid beginnings. Where the leadership has been wise and support has been given by boards of education, these school lunch rooms have been a success financially and otherwise.

The cafeteria method of serving school children has been found to be the most efficient, because by this method large groups of children may be served in a short time and in a comparatively limited space. This method is also the least expensive method of feeding, and since school lunch rooms should be self-supporting, this is an important point to be considered.

In the East Orange High School lunch room, an average of one thousand one hundred girls and boys are served daily. The accompanying menu gives some idea of the cost and variety of foods served. For instance, the Wednesday menu includes the following:

Vegetable soup	$.05
Meat loaf and mashed potatoes	.15
Creamed chicken on toast	.15
Scalloped potatoes	.05
Lima beans (dried)	.05
Ham sandwiches	.05
Baked beans	.05
Nut and cheese sandwiches	.05
Lettuce sandwiches	.05
Waldorf salad	.10
Ham and potato salad	.10
Chocolate pudding	.05
Fruit cup	.05
Ice cream	.10
Cocoa	.05
Milk	.05
Home salted peanuts	.07
2 rolls and butter	.05

On a separate menu board, food combinations at various prices are posted each day as suggestions to those who have no definite selection in mind. For instance, say on Wednesday, the following combination menus will be suggested: For 15c, vegetable soup, 2 rolls and butter, chocolate pudding; for 20c ham and potato salad, milk, fruit cup; for 25c creamed chicken on toast, lettuce sandwich, cocoa. Other combinations suggested to the children are baked beans, lettuce sandwich, Spanish cream for 15c; fish balls, cold slaw, rolls and butter, Brown Betty for 20c; and meat balls and mashed potatoes, pineapple and cheese salad for 25c.

Milk chocolate was removed from the menu as it was found that the children were eating too much of it.

The lunch room is under the supervision of the home economics department, and every effort is made to maintain high standards of food and service.

A study of lunch room menus forms a part of the year's work in all food and cookery classes. Elementary science and chemistry classes also touch on the subject. Frequently, articles published in the high school paper bring to the pupils and the home interesting phases of food and nutrition as observed in the lunch room. These articles are written by pupils of the school in a column headed "The Lunch Room Observer." It has been possible through this column to put across in an interesting and informal manner important facts relating to food and health.

The lunch room is as important a part of the school plant as the gymnasium or auditorium and deserves the same thought and consideration in planning a new building. After the original equipment has been installed, the lunch department should be entirely self-sustaining. All salaries, wages, repairs and replacements, installation of new equipment, gas and electricity should be paid from food receipts. A well equipped, wisely managed school lunch room will always be a success financially. From a health standpoint, it will be an asset to both school and community.

The University of the State of New York, Albany, has issued its second revised edition of bibliography bulletin 69 listing books on health as related to the school child.

A corner of the East Orange High School lunch room during the busy hour. Different menus each day and suggested combinations at low cost offer to the pupils a well balanced noon-day meal.

The Summer Camp, a Builder of Health

Physical Training for All Should Be Aim of a Well Regulated Camp

By EDWIN De MERRITTE, Director, Camp Algonquin, Ashland, N. H.

LIFE in a properly recognized summer camp is now recognized as a potent factor in the upbuilding of strong, vigorous, progressive boys and girls. The value of such a camp cannot be over-estimated. Much depends upon the make-up of the camp. If it be beneficial, it must take account of location and sanitation, moral surroundings, food, properly controlled exercise, division of time, numbers, and supervision.

The small camp has a great advantage in supervision and personal touch. The outdoors has a life giving quality; it invites close study and furnishes a never ending source of joy as nature unfolds itself to the willing observer. The pure air of the woods, bird, animal and plant life, the structure of the earth, and the study of the heavenly bodies offer strong inducements to wide-awake boys and girls to make this study part of their recreation in the open. With these there is no over-exertion, no physicial exhaustion, no mental weariness. They furnish a physical and mental stimulus. The tendency to commercialize the camp is a serious drawback to the welfare and health of the child which must be the first consideration. The whole future of the child, mental, moral, and physical may be either strengthened by wise supervision or ruined by careless leadership. A wise supervision produces and gives the opportunity to develop initiative and self-reliance. The camp director has a responsibility which he cannot safely delegate to others. He alone is responsible to the parents for the care of the child.

The camp life, the associations, the teaching by example, and the moral influence of the council have a strong bearing on the future of the child at an age when the mind is receptive and the tendency to imitate is strong. As most children are hero worshippers, the need of care is therefore great. If we look after the health and normal surroundings of the child, we have laid the corner stone for a life of usefulness. Unless the camp makes this its duty, it fails in its work.

Athletics form a large part of the work in most camps. In fact too many camps are little better than training schools for preparatory school athletics. The athletic trainer is chosen for his fame as an interscholastic or intercollegiate athlete, and consequently as a drawing card rather than for his sterling character and ability to lead and guide in the right way. His sole object is to turn out a winning team regardless of results. He does not consider that the growing boy must be trained gradually, must never be allowed over exertion, as the overtaxing of his strength is often fatal to the promising athlete for all future time. In training a winning team only a few get the necessary care. The rest are neglected.

Athletics for All Members

To illustrate, a few years ago a high school in Massachusetts had a winning foot-ball team. This team was sent west to compete with a winning team there. Of the five hundred boys in this school only about fifty did any regular athletic work in the open air. The reason given by the boys was "What is the use? We do not stand any chance to get on a team." Here 90 per cent of the boys, the ones who really needed careful systematic, health giving training in the open were sacrificed that the school might have a winning team. For the above reasons the system of inter-camp athletics is wrong, as the camp which is not giving to every member of the camp the same thoughtful care is not doing its duty, and a camp cannot serve two masters successfully. Within each camp boys of like age and strength should be opposed to each other in contests adapted to their strength, and the results of games lost and won should have the same rank as those of the older boys.

It is to those children who are indolent by nature and who have never known the thrill of legitimate competition that special attention must be given to round out the body and give to them that physical strength so necessary to stand the mental strain of an active business life in later years. To do this a slow and systematic beginning must be made to mould gradually the hitherto untrained muscles into one symmetrical whole, with every muscle trained to perform its duty, the lung power strong and the heart able to send the

The Director of the camp, who eighteen years ago, to save himself from becoming prematurely old, worked out the system of exercising which the camp follows.

Cantilever Stores

Cut this out for reference

Akron—11 Orpheum Arcade
Albany—Hewett's Silk Shop, 15 N Pearl
Altoona—Bendheim's, 1302 11th Ave
Atlanta—Carlton Shoe & Clo. Co
Auburn & Geneva, N. Y.—Dusenbury
Austin—Carl H. Mueller
Baltimore—525 No Charles St.
Battle Creek—Bahlman's Bootery
Bay City—D. Rendall Co
Birmingham—219 North 19th St.
Boston—Jordan Marsh Co
Bridgeport—W. K. Mullan
Brooklyn—414 Fulton St
Buffalo—629 Main St
Butte—Hubert Shoe Co
Camden—Curran's, 110 Broadway
Cedar Rapids—The Kilhan Co
Charleston—J. F. Condon & Sons
Charlotte—221 Piedmont Bldg
Chicago—4750 Sheridan Rd., Room 211, 30 E. Randolph St., Room 502
Cincinnati—The McAlpin Co.
Cleveland—Graner-Powers, 1271 Euclid
Columbia, S. C.—Watson Shoe Co
Columbus, Miss.—Simon Loeb & Bro.
Dallas—Leon Kahn Shoe Co
Davenport—R. M. Neustadt & Sons
Dayton—The Rike-Kumler Co
Denver—221 Foster Bldg
Des Moines—W. L. White Shoe Co.
Detroit—T. J. Jackson, 41 E. Adams
Easton—H. Mayer, 427 Northampton
Elizabeth—Gigli's, 1057 Elizabeth Ave
Elmira—C. W. O'Shea
El Paso—Popular Dry Goods Co
Erie—Weschler Co., 910 State St.
Evanston—North Shore Bootery
Fall River—D. F. Sullivan
Fitchburg—Wm. C. Goodwin, 342 Main
Fort Dodge—Schill & Babenicht
Galveston—Fellman's
Grand Rapids—Herpolsheimer Co.
Hagerstown—Bikle's Shoe Shop
Harrisburg—Orner's, 24 No. 3d St
Hartford—86 Pratt St
Houston—Clayton's, 803 Main St
Huntington, W. Va.—McMahon-Diehl Co.
Indianapolis—L. S. Ayres & Co.
Jackson, Mich.—Palmer Co.
Jacksonville—Golden's Bootery
Jersey City—Bennett's, 411 Central Ave.
Kansas City, Kan.—Nelson Shoe Co.
Kansas City, Mo.—300 Altman Bldg
Knoxville—Spence Shoe Co
Lancaster, Pa.—Frey's 3 E. King St
Lansing—F. N. Arbaugh Co.
Lawrence, Mass.—G. H. Woodman
Lexington, Ky.—Denton, Ross Todd Co
Little Rock—Poe Shoe Co., 302 Main St.
Los Angeles—505 New Pantages Bldg.
Louisville—Boston Shoe Co.
Lowell—The Bon Marche
McKeesport—Wm. F. Sullivan
Milwaukee—Brouwer Shoe Co
Minneapolis—21 Eighth St., South
Mobile—Level Best Shoe Store
Montgomery—Campbell Shoe Co
Morristown—G. W. Mellek
Mt. Vernon, N. Y.—A. J. Rice & Co
Nashville—J. A. Meadors & Sons
Newark—897 Broad St. (Opp. City Hall)
New Britain—Sloan Bros
New Haven—153 Court St. (2d floor)
New Orleans—109 Baronne St., Rm 200
New Rochelle—Ware's
New York—22 West 39th St.
Norfolk—Ames & Brownley
Oakland—205 Henshaw Bldg.
Omaha—1708 Howard St.
Passaic—Kroll's, 37 Lexington Ave
Pawtucket—Evans & Young
Peoria—Lehman Bldg. (Room 203)
Philadelphia—1300 Walnut St
Pittsburgh—The Rosenbaum Co
Pittsfield—Fahey's, 234 North St.
Plainfield—M. C. Van Arsdale
Portland, Me.—Palmer Shoe Co
Poughkeepsie—Louis Schoenberger
Providence—The Boston Store
Richmond, Va.—Seymour Sycle,
Rochester—148 East Ave
Rock Island—Boston Shoe Co
Saginaw—Goeschel-Brater Co.
St. Louis—516 Arcade Bldg. (Opp. P.O.)
St. Paul—43 E. 5th St. (Frederic Hotel)
Salt Lake City—Walker Bros. Co.
San Antonio—Guarantee Shoe Co.
Santa Barbara—Smith's Bootery
San Diego—The Marston Co.
San Francisco—Phelan Bldg. (Arcade)
Savannah—Globe Shoe Co
Seattle—Baxter & Baxter
Shreveport—Phelps Shoe Co
Sioux City—The Pelletier Co.
South Bend—Ellsworth Store
Spokane—The Crescent
Springfield, Ill.—A. W. Klabon
Springfield, Mass.—Forbes & Wallace
Stamford—L. Spelke & Son
Syracuse—136 S. Salina St
Tacoma—255 S. 11th St. (Fidelity Bldg.)
Terre Haute—Otto C. Hornung
Toledo—LaSalle & Koch Co
Topeka—The Pelletier Co
Trenton—H. M. Voorhees & Bro.
Tulsa—Lyons' Shoe Store
Utica—Room 104 Foster Bldg
Waco—Davis Smith Bootery
Waltham—Rufus Warren & Son
Washington—1310 F Street
Waterbury—Reid & Hughes Co
Wheeling—Geo. R. Taylor Co.
Wilkes Barre—M. F. Murray
Worcester—J. C. MacInnes Co.
Yakima—Kohls Shoe Co
Yonkers—Louis Klein, 22 Main St
York—The Bon Ton
Youngstown—R. McManus Co.
Zanesville—J. B. Hunter Co

Agencies in 24 other cities

A flexible shoe for your flexible foot

Nature, in her wisdom, designed your foot arch to flex when you walk. Why restrain it in shoes that are rigid and without natural lines? "The foot is like a cantilever spring," wrote a noted doctor. "The Cantilever is the most comfortable shoe I have ever worn," said a trained nurse; and another woman said, "In Cantilever Shoes I feel as though I were flying."

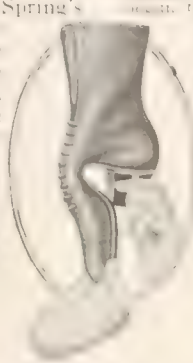
It is because of the *flexible shank* and *natural lines* of the Cantilever Shoe that you will derive such comfort from it. And because of its graceful appearance and its harmony with this Spring's shoe styles you will see it worn wherever daytime costumes are worn. Fine workmanship, splendid materials and reasonable prices add to make the Cantilever desirable.

The graceful carriage and [illegible] walk of the Cantilever Woman are [illegible] mired. Her feet are [illegible] She walks naturally, with a minimum of effort. Every [illegible]

every step, Cantilever Shoes make her feet [illegible] as to the wings of Mercury.

Though you may not be conscious of it, there are few things that spoil a good impression quicker than shoes that nag you. Nerve strain, leading to [illegible], headache, and even to pains in the [illegible] rheumatism, may be caused by high heels and by shoes that bind and restrict the feet. Many writers on health and beauty subjects are now stressing out the importance of a correct shoe, not only for health, but for [illegible], and personal attractiveness.

You are given two marvelously [illegible] feet. At the nearest Cantilever Store, try on a pair of shoes [illegible] to them needs. Keep your feet well and spare yourself the misery that so many women [illegible]. If already [illegible] shoes have already [illegible], a change to Cantilevers will help them. Wonderful [illegible] will be [illegible] per every use, your [illegible] circulation will make you feel better and look better.



If [illegible] of the [illegible] dealers [illegible] Model & Burt [illegible], Carlton Avenue, Brooklyn, N. Y., [illegible] Cantilever Booklet, which tells [illegible]

Cantilever Shoe

Endorsed by Women's Colleges, Women's Clubs, Public Health Associations, Directors of Physical Education, Editors, Nurses and prominent women everywhere

Some of the members of the camp who have built up strong, muscular bodies as the result of consistent training. The second man from the right came to the camp as a boy suffering from heart disease and through graduated exercise became normal.

blood regularly to every part of the body with ease.

Some years ago the writer had a boy placed in his care in camp with definite instructions from the family physician not to allow him to engage in any active competition on account of heart trouble. Baseball was forbidden on the ground that the running of a base might prove fatal. Before the summer was over his heart trouble had nearly disappeared and he was able to enter into the regular life of the camp without any harm. After one year's practice of the physical exercises learned at the camp, giving to them about ten minutes per day, he was as strong physically as other boys who were normal at the start, and had followed the same course in physical training. He is now a successful engineer and ably doing his work. This is one case where careful, sane building of the body in one camp season changed a boy from a weakling to one able to meet the demands of a useful and successful career. Last year a boy about thirteen had an operation for appendicitis early in June and came into camp a week late in consequence. By the middle of August he was taking the regular camp activities and swam his fifty yards in thirty-five seconds with ease. These facts are mentioned to show what can be done by careful supervision and training.

The system at this camp for developing body and health is simple and not exhausting. It was worked out by the director eighteen years ago to save himself from becoming prematurely old. Now at seventy-six he is doing twelve to fourteen hours work a day and can follow the hunt from daylight to dark with younger men and not be the laggard. He takes his exercises daily. What one has accomplished in the way of health, others can.

The camp physician, usually an untrained medical student, is not necessary if a competent local physician is available for an emergency. The teaching of First Aid is within reach of every camp, and each member should be required to learn bandaging, stopping the flow of blood, and what to do in any emergency. The teaching of First Aid may be so attractive that each child in the camp feels it his or her duty to learn it accurately.

Swimming Hour Supervised

Under this head comes also life saving which every camper should know. The swimming hour may be made invigorating and health giving or a source of danger. This is especially true of camps on inland, fresh water lakes. All swimming periods in fresh water should be made short, not over twenty minutes at most. If this plan is carried out, the camp will be benefited and every member of the camp given a new lease of health. Where boys are allowed to stay in the water as long as they please they lose vitality, become enervated, return home unfitted for their school work. This is a frequent complaint of parents and injures the value of camp life in the minds of many people. During the short swimming period as much progress can be made under proper supervision as in a longer time and the camper is always fit.

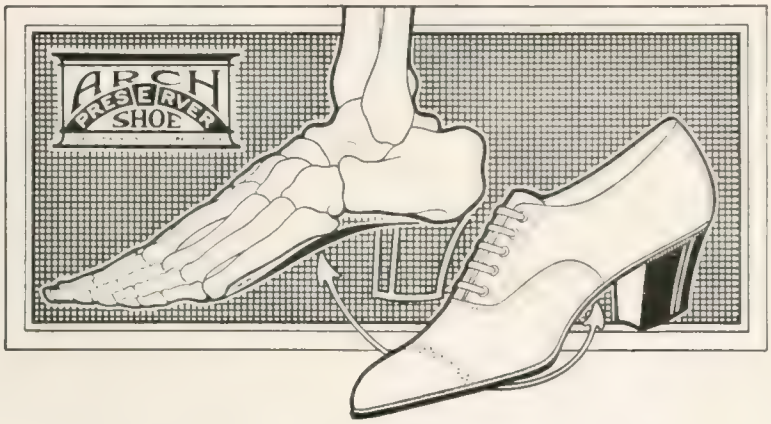
Another drawback to a successful summer in health building is the camp store. The writer has before him a list of camps which buy confections from one manufacturer. The inducement to purchase for the camp store is the big margin of profit possible. Of the one hundred twenty-nine camps on the list, how many are profiteering, and how many find their young friends benefitted by the over dose of confections? Children will go the limit. They lack discretion as to the amount they may eat at one time with safety. But the larger the sales the larger the profit.

The food question in camp is of vital importance. The kitchen and dining room should be in charge of experts and run on purely sanitary lines. Where the campers are expected to do a large part of this work, the conditions cannot be otherwise than insanitary as this is not the work for which they go to camp, and the work is done in a hurry to have time for things which are a legitimate part of their camp life. Plain, simple, nourishing food with variety enough to avoid too frequent repetition should be available in every camp, and only the best grades should be supplied. In the end the best grades will be found the cheapest as there is practically no waste as is invariably the case with cheaper grades.

In writing this article, the writer has endeavored to point out a few of the prevailing evils which an experience of thirty-six years as camp director has brought to his notice. During this period he has had a camp physician for only four seasons, but the health of the camp has been so good that there has been nothing for him to do. This should be the condition in every camp. It is always possible to keep the whole camp in such a healthy condition that each and every member is always ready to take part in all that pertains to camp activities.

The camp has come to stay. It provides for the growing boy or girl the right associates, the right leaders, regular hours, good food, sanitary environment, and plenty of exercise in the open. More and more camp directors are studying all these questions and are improving their conditions each year. Contrast with this the ordinary life of the child who either stays at home or is taken to some summer resort where the life and environment are not conducive to good manners, good morals, or good health. Few parents give to their children that watchful care which they receive in a well regulated camp, under wise supervision at all times. In camp, under wise leaders, the prevention of things which are injurious to health is much easier than in a hotel or at home. Above all, parents should investigate a camp before sending their children there.

What reason is there for fighting Nature?



THE easy way, the sure way, to maintain health is to work WITH Nature!

And wherever Civilization has opposed Nature there has been trouble. Especially in shoes is this true.

Nature requires a firm walking base underneath the entire foot. Nothing difficult to understand about that, because the function of the foot is primarily to bear the weight of the body.

Yet, Civilization, for some unknown reason, evolved our ordinary shoes which leave the foot arch (the most delicate part of the foot) without support of any kind. This causes a strain; the foot weakens; there is discomfort; health is impaired.

In the past this form of footwear was excused on the ground that people desired heels. Today there is no excuse, because women can wear heels; can have the styles they wish; and yet wear shoes that give full length support to the foot. The Arch Preserver Shoe works WITH Nature. It offers all that the so-called stylish shoes give—plus foot health and comfort.

A concealed, built-in-arch bridge makes the Arch Preserver Shoe support the foot as normally and comfortably, as when going barefooted.

Write for special booklet 55 "Why the Arch Preserver Shoe preserves the feet." Ask us the name of your dealer, if you don't know him, or call the "Tel-U-Where" Bureau.

The Selby Shoe Company, Portsmouth, O.
15 Gallia Street

THE ARCH PRESERVER SHOE

Training of Hospital Executives

A REPORT of more than ordinary significance has just been issued on the subject of training hospital executives. The report represents a study covering nearly two years under the auspices of a committee created in the winter of 1920 for the purpose consisting of the following members: Dr. David L. Edsall, Dean, Harvard Medical School, Boston, chairman; Dr. W. L. Babcock, Superintendent, Grace Hospital, Detroit; John G. Bowman, Chancellor, University of Pittsburgh, Pittsburgh; Miss Elizabeth Flaws, Superintendent, Wellesley Hospital, Toronto; Dr. S. S. Goldwater, Director, Mt. Sinai Hospital, New York; Miss Annie W. Goodrich, Teachers College, Columbia University, New York; Prof. Paul H. Hanus, Department of Education, Harvard University, Cambridge; Rev. Charles B. Moulinier, S. J., President, Catholic Hospital Association of the United States and Canada, Milwaukee; Dr. Frederic A. Washburn, Director, Massachusetts General Hospital, Boston; Dr. Willard C. Rappleye, Chicago, executive secretary.

The information gathered by this committee has been condensed into a compact report of twenty-eight pages. It may be called a fundamental report leaving details for the most part for elaboration by others. It is essentially an attempt to place the hospital in its setting in community affairs. The position of the hospital is set forth as follows:

The common ground upon which the patient, the community and the professional groups meet and representing the general type of organization which, with proper amplification and development, can best meet the problems suggested, is the hospital. It evidently occupies a strategic midposition and has open to it a great opportunity and a corresponding obligation, not as an institution for the salvage of human wreckage but as a coordinator of activities — professional, economic, and social—in their application upon the problems of health. In such a conception, the hospital represents not the administration alone but a cooperative organization of workers and leaders devoted to the ideals of their respective professions.

After setting forth the functions of the hospital a concise definition is given:

The hospital may then be defined as a community organization which provides facilities and personnel for rendering the highest possible grade of health services to patients, professional groups, and the community; for educating the community to demand and support adequate health services and sound health policies, for educating additional personnel and professional groups in technical fields and in cooperative endeavor; and for advancing our knowledge of disease and its prevention through technical research and appropriate organization.

The organization necessary to carry out these functions is described thus by the Committee:

The plan of organization to execute these complex functions must be developed to secure the highest efficiency of performance at a minimum of effort and cost. The chief function of administration is to create an environment conducive to the spontaneous, creative expressions of the groups working within the organization and to relieve the professional workers as much as possible of nonprofessional and non-technical duties; to provide, then, the facilities and machinery by which the fullest expression of functions may most easily be obtained. A sound plan of organization must be constructed in relation to the fundamental unit of operation, to the objectives sought and to the personnel it serves, not the reverse.

The unit of operation of the hospital about which the whole organization should be built, upon which all activities must ultimately converge and constituting the reason for the existence of the hospital and professional groups working with it, is the patient. Only through him and contacts arising therefrom can the hospital find its fullest expression of service. A patient in the last analysis is only a human being either with or threatened with incapacity, physicial or mental. He represents the cross section of a human life and as much is the resultant of many forces in the past—hereditary, industrial, environmental, economic, social —which may have conspired to predispose or contribute to his present condition. It is frequently quite as necessary, then, to understand and to interpret these human and social factors as it is to appraise technical and biological factors in order to secure a correct diagnosis, to guide treatment intelligently and to propose methods of prevention. The administration of a hospital under this conception must necessarily be based on the community as the unit of operation, not the institution.

"The hospital executive, as executive officer of the governing board," it is declared, "stands between the policy determining body and the hospital work and closely in contact with the professional groups. Such an officer should be able to interpret community needs, the methods to be devised to meet them, the objectives sought, the fundamentals of sound organization and administration, and be able to mobilize and direct the self-expression of diversified activities toward a common goal."

After pointing out the inadequacy of existing means of training leaders in the field of hospital administration the report outlines a course of study which it is definitely stated should be given "under university auspices," It lays down a general course of training under ten heads giving weights to each as indicated: (1) Public health, 20 per cent; (2) social sciences, 15 per cent; (3) organization, 15 per cent; (4) hospital functions and history, 10 per cent; (5) business science, 10 per cent; (6) institutional management, 10 per cent; (7) personnel administration, 5 per cent; (8) community hospital needs, 5 per cent; (9) physical plant, 5 per cent; (10) jurisprudence, 5 per cent.

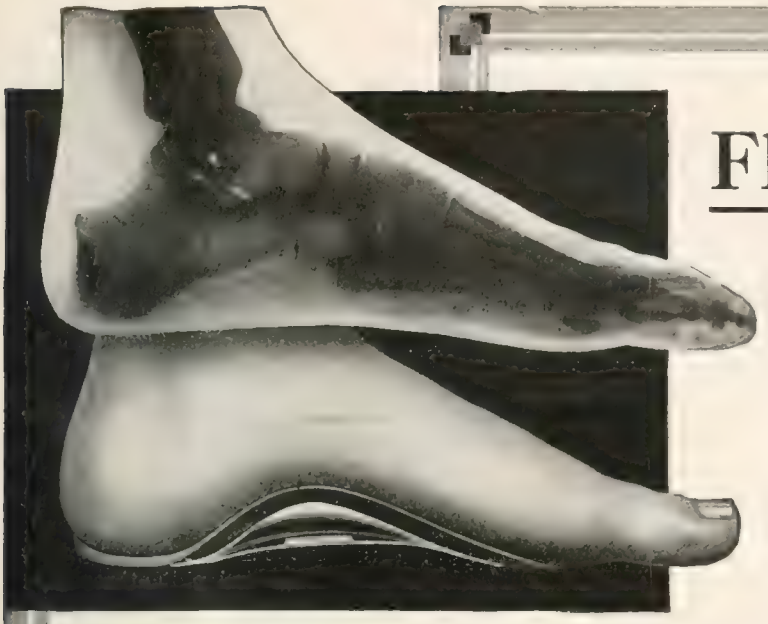
A significant point about this course of study is the large proportion given to public health and social sciences, emphasizing as these facts do the enlarged place of the hospital in community life.

The report considers the preliminary requirements for training, the subject matter for basic training, educational opportunities for present hospital superintendents, and research in health problems. It does not attempt to indicate where training centers should be located except that they should be under university auspices, the selection of training centers not being within the function of the committee.

The report concludes with the following compact summary:

The growth of a sense of community responsibility in matters of health is leading to a demand for coordination of the diversified activities and professional groups concerned with these problems. The hospital represents in general the common ground of most of these activities and groups and a type of organization which may readily be adapted to the functions of coordination, education, and service. It occupies a strategic position in the whole field of community health and provisions for the adequate training of hospital executives would constitute a fundamental contribution to the entire program.

The Ohio State Board of Vocational Education is asking the Ohio State Medical Association to help in securing a census of disabled men and women in Ohio who may be eligible for vocational training to overcome any economic handicap resultant from injury or disease.



Flat Foot

Flat Foot and Weak Arches Can Be Corrected

To restore the physiological functioning of the muscular structures it is essential that the depressed Longitudinal Arch be progressively raised and supported in position to remove all excessive muscular and ligamentous strain. This is successfully accomplished by the use of

Dr Scholl's
Corrective Foot Appliances

and a series of foot exercises for the purpose of strengthening and restoring usefulness to the foot and leg muscles.

Doctor, there are thousands of cases of painful feet with symptoms of arthritis and gout that are caused by weak arch or flat-foot. Statistics show that growing children are as susceptible as adult men or women regardless of their position in life.

Be prepared for your next case —make a physical examination and prescribe a treatment as originated and perfected by Dr. Wm. M. Scholl, and as used by over twenty thousand successful practitioners.

Valuable Pamphlet Free

If you will write your name and address on a post-card we will send you, post free, a new pamphlet just published —"Foot Weakness and Correction for the Physician," and include a chart of foot exercises.

THE SCHOLL MFG. CO., 213 West Schiller St. Chicago, Ill.
NEW YORK TORONTO LONDON

Chicago's Health Pageant

PRACTICALLY every phase of disease prevention is capable of dramatic presentation if only the dry as dust figures we encounter everywhere are visualized and have the breath of life put into them. This the Health Pageant undertakes to do. Models of sanitary lay-outs for camps or rural homes are in stern contrast, side by side. The peregrinations of the fly show him to be an unworthy visitor, one to be excluded by fair means or foul. If babies in the proportion of one in seven suffer from preventable disease, the shocking fact is brought home by the decimation of the rank and file infants as they appear in a moving picture. The committee, realizing that the public, although interested enough in the concrete fact or the specific instance, is unconscionably hard to move by generalizations and has realized the necessity of animated figures and demonstrable facts in driving home the health facts pertinent to the local situation.

The Health Pageant carries a distinct message in matters of nutrition. The pure food show will show exactly what constitutes a balanced ration, its cost, and how it may be prepared. It undertakes to show not only that health is a purchaseable commodity, but that there is a distinct relationship between dietary habits and longevity, that tuberculosis is amenable to control, and that community health is largely a matter of community initiative. It shows the busy housewife how to arrange her budgets satisfactorily from a health standpoint, and the average man how to be a good citizen from the angle of welfare.

The old conception of health activities having to do largely with police powers, protecting the public against contacts, and in certain instances forcing upon a reluctant public the necessary health practices is giving way before health measures understood and self-imposed. Hence the intensive effort that is being made to direct aright the educational features of the Exposition by health departments, Federal, state, and municipal.

Making Palestine Sanitary and Healthful

The political aspects of the situation at Palestine have rather overshadowed in the public interest the aspect of the indefatigable effort of the scientific medical workers in Palestine to make the country fit to live in from a sanitary and medical point of view.

The Medical Unit, ably directed at Jerusalem by Dr. J. M. Rubinow with the assistance of Miss Henrietta Szold, formerly of New York, and Miss Sophia Berger, has established four hospitals in Palestine and a sanitary service that reaches throughout a large part of the country, the North and Galilee. It has established a nurse, a physician, or a druggist in every Jewish settlement in Galilee, and a corps of sanitary inspectors as watchful and active outposts in the campaign against malaria. These inspectors, young bacteriologists under their chief, Dr. Kligler of the Rockefeller Institute, work through the country, watching the purification of the water, looking after the prophylactic administering of quinine, the construction of sanitary waste systems and the removal of garbage, the extermination of the fly nuisance and the prevention of disease in general.

A special corps of physicians and nurses is carrying on careful school inspection work for ten thousand children, with the purpose of extending this service to not only the Jewish communities but the children of other communities as well. The recent gift of an x-ray equipment by an American visitor will greatly facilitate this part of the work.

Infant mortality is great in Palestine largely because of the poor and unsanitary home conditions under which, in many instances, babies are ushered into life. To cope with this difficulty an obstetrical ward has been established in the hospital at Jerusalem.

There is urgent need, of social service nurses all over the country. At present the Medical Unit keeps up an infant welfare station with a milk distribution centre attached to it.

The work in Palestine and the problems it involves, being purely humanitarian and philanthropic, as distinct from any political aims or activities, is expected to have the support not only of the various sects and races in Palestine, but of well-wishers in the work of human betterment and the alleviation of human ills everywhere.

That poor vision is a contributory cause of delinquency is the opinion of Judge Charles L. Brown of the Philadelphia Municipal Court. Every sixth child passing through the medical department of the court shows eye conditions which cause social maladjustment.

A receiving and clearing bureau for the Protestant child-caring institutions of New York is about to be established. Plans for a model group of buildings for the purpose have been filed with the State Board of Charities by Mr. Edwin Gould, who will erect the buildings and support the undertaking. The new bureau is the outcome of many months of study by specialists.

Last year one million people attended the Health Pageant in Chicago, held on the Municipal Pier. Ingenious devices made vivid the story of health and the penalties the people pay for indifference or ignorance. The Second International Pageant of Progress will be held July 29 to August 14, 1922.

New discussion of the value of yeast treatment in suppurative skin diseases

IN a chapter entitled "Boils, Furunculosis, Carbuncles, Acne" fresh light is thrown on the question of yeast therapy in relation to these and other suppurative skin diseases.

Up-to-date sources and authorities are quoted so that the physician, if he wishes, can follow up the condensed material of this chapter by further reading and research.

The author says in the opening paragraph of the chapter:

"The use of yeast internally, while usually effective alone, should always be considered supplementary to any necessary local treatment. And boils that have reached the suppurative stage at the beginning of treatment should of course be opened with the necessary surgical precautions and after treatment. It will usually be found that boils just starting will abort, and one of the great advantages of the use of yeast is the prevention of recurrence. The rapidity with which a group of boils in various stages of advancement will often dry up and disappear is astonishing. When surgical intervention is necessary, the use of yeast will shorten the period of discharge and hasten the healing process.

"It is better to start at once with three cakes a day taken before meals. Yeast may be administered plain or with salt, on crackers, toast, in milk, water or fruit juices.

"It is important that the bowels should be kept freely open. This is accomplished by the yeast, but if this action becomes excessive the dose should be diminished. For the prevention of recurrence and in order to raise the resistance of the body to a normal level the yeast should be continued for several weeks after a cure has been effected."

The book from which the foregoing paragraphs are taken, gives in compact form the result of modern study of yeast. It is published by The Fleischmann Company and is distributed free to physiological chemists, doctors and hospitals. Write for a copy, addressing THE FLEISCHMANN COMPANY, Dept. Y-6, 701 Washington St., New York

Science Aids the Deaf

CURIOUS interest has run wild in its effort to understand the phenomenally high degree of the velopment of the senses of touch and smell exhibited by Willeta Huggins, aged seventeen, blind and deaf, but able to detect colors through her sense of smell, read newspaper headlines, talk over the telephone, enjoy music, carry on rapid conversation through her sense of touch, and to do a score of other things not usually considered possible to persons so handicapped.

The spectacular means of communication developed by those in whom certain senses are abnormal or lacking offer sufficient proof of the possibility of establishing through special training such means of communication as are essential to the mental development of these handicapped children. In order that a child with impaired hearing may eventually attain the highest possible degree of efficiency, his training must differ somewhat from that of the child with normal hearing, and this modification in training should begin with the onset of deafness.

The chief cause for failure in training the deaf is that the condition is not detected early, or parents postpone opportunity for special training beyond the auspicious moment for good results. If in the first year of life, when naturally the child first begins to react to sound, special methods were substituted and scientifically and consistently carried out, the disastrous results of deafness as a handicap could be greatly reduced. The tragedy of the matter is that "not one mother in ten thousand knows how to meet the situation as it should be met, unless some special guidance is provided."

The educational treatment of deaf children, as in other defects, presupposes careful diagnostic study. It needs to be established whether total deafness exists for all kinds of sounds or whether certain noises or sounds are heard. These "rests" of hearing are now utilized to the utmost in the educational methods utilized for their training. Every teacher is aware of the favorable effects of even vowel hearing on the speech of deaf children. Even though this vowel hearing is only an indefinite blur of sound, it may be sufficient to enable the deaf child mechanically to produce some or other of the stronger vowel elements, and with marked benefit on the quality of voice and speech. Constant repetition of these realized sounds give them a definite character. The sequence of practised forms becomes associated with lip reading and greatly aids recognition and association.

Writing in the *Lancet* on the educational treatment of residual hearing in deaf children, A. J. Story, chairman of the National College of Teachers of the Deaf, argues the necessity of enlisting in the service of the individual child whatever advantage, however small, he may possess of the natural faculty. The best means of conservation is one that utilizes the existing hearing power to carry on further the oral and general education.

Wide World Photos.

Willeta Huggins, of Janesville, Wis., stone blind and entirely deaf, has developed an acuity of the sense of smell which enables her to detect colors and to become aware of the presence in her vicinity of anyone she knows. Psychologists have been unable to discover by what means she interprets these things.

In many cases parents and medical men do not understand the present conditions of schools for the deaf. Many associate such schools with an atmosphere of perpetual silence, whereas in actual truth the modern school for the deaf is often vocally noisier than the school for hearing children in the effort to develop in them added powers of vocalization and of association through phonetic memory. The proper training of these children calls for their classification according to the history and degree of deafness, and their mental condition. It is supposed that all that medical skill can do to prevent or improve the deafness has been done before it is accepted as a settled condition and educational methods devised.

Especially is it important for parents and those responsible for the children to understand that along lines of specially adapted training lies their only hope. The message of Dr. James Kerr Love, the well known aurist of Glasgow, in a note to parents may safely be followed in the handling of deaf children.

"If your child has been born deaf, or if illness has caused deafness and loss of speech, his hearing will never return. The exceptions to this statement are so few that they are not worth considering in thinking of the future of your child."

Wide World Photos.

This new Helen Keller learned to talk with people by placing her hand upon the larynx. She then found she could carry on a conversation by placing her finger tips on the head or the chest of the speaker. She can follow a lecture or an orchestra merely by holding a sheet of paper in the air.

Red Cross Leader Summoned

Henry P. Davison, who died at his Locust Valley, L. I., home on May 6, was a masterly organizer in the business world, but the chief monument to his memory will be the unselfish service he gave to his country in mobilizing the forces of the American Red Cross to meet the emergent conditions of the war. The Red Cross movement throughout the world, and the American Red Cross in particular, have suffered a serious loss.

WE BELIEVE

THE Medical Profession will be pleased to know that for the past nine months the Sherman ten mil. vial has been filled to contain 12½ milliliters of vaccine.

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DETROIT, MICH.

Veterans' Camp at Saranac

THE Veterans' Mountain Camp, promoted and largely financed by the New York Department of the American Legion, promises at last the greatly needed home for convalescent soldiers.

The Barbour camp in the Saranac region of the Adirondacks, the replacement value of which is estimated at three hundred thousand dollars, is to be acquired for $85,000, together with 1,200 acres having a shore line of 2.6 miles on Big Tupper Lake. There is the usual equipment of farmhouse, root cellar, barn, etc., besides a handsome recreation hall and four large motor boats. The luxurious main camp is to be used as an infirmary for some twenty bed patients. Log lean-tos are to be built for convalescents, permission having been granted to place them on the lakes and streams of the adjacent forest preserve, with kitchens and mess rooms conveniently located. The average stay of patients in city hospitals is about two weeks, but the Legion hopes to extend the time to three weeks. With one hundred beds in the open the mountain camp will be able to care for 1,700 patients a year. The only condition for admission will be an honorable discharge from service and genuine need of treatment. Preference will be given to veterans of New York State, but when possible all comers will be welcomed.

It will cost twenty thousand dollars to equip the camp and it is estimated that the annual running expenses will be fifty thousand dollars. To cover present expenses and provide for gradual enlargement, the Legion has undertaken to raise an endowment fund of $2,500,000 to place the project on a permanent basis.

Different Dietary Systems

A SOUND knowledge of dietetics is more valuable than the practical exhibition of drugs, states Thomas Dutton, author of "Digestion and Diet," writing in the March issue of the *Medical Times*. He goes on to affirm that through his dietetic psychological system he is able to show highly satisfactory results in various forms of digestion, rheumatism, gout, obesity, and nervous diseases. The more practical the knowledge of the treatment with drugs, combined with a scientifically selected dietary, the more successful the physician. Dutton does not think, however, that the faith should be pinned to any definite diet for one and every complaint. Discussing the relative values of different diets, he proceeds:

Taking an impartial and unbiased view of food values, I believe the manual worker and the man or woman who take a great amount of physical exercise daily, can obtain the best and most economical food value from a mixed diet of meat, fish, vegetables, cereals and fruit. The professional man and the sedentary worker can spend a more healthy life on the pseudo-vegetarian diet with milk, cheese and eggs, with fish added on those days when any violent physical exercises is undertaken, but to place a navvy on raw vegetables and nuts, seems to me absurd and, according to our knowledge of food factors, would simply tend towards the creation of a degenerate race and bring on many diseases of the internal organs and the nervous system.

That the most economical manner of getting protein is from the flesh of animals, birds and fish is undoubtedly true, but there is a great drawback against this source of food, namely, that we have to kill in order to obtain it. I, therefore, would willingly join a league to try the experiment of abstaining from all animal food for a period to ascertain the result of doing away with this protein, in order to avoid the necessary "killing." Perhaps it would be advisable for the professional community and sedentary workers to test this dietetic scheme before asking the manual worker to join. Of course, it will be useless unless about 75 per cent of the population fell in with this humanitarian dietary.

The great drawback to the pseudo-vegetarian, vegetarian, or raw vegetarian and nut dietaries is the expense, trouble, and the skillful cooking required to make such food digestible and appetizing. At the present time either of these would cost twice as much as the average mixed dietary.

Only one housekeeper in a quarter of a century really understood the cooking of vegetables properly, much less the making of substantial vegetables, with cereal dishes as a meal of resistance.

Besides the cooking, a vegetable diet requires a good, sound, healthy digestion, particularly if the food is not cooked well. As an example, I have had two patients lately with severe forms of indigestion who have been under the care of a so-called specialist who prescribed raw vegetables and nuts. The patients could neither digest one or the other,, but, when placed under a diet consisting of minced poultry and rabbit, white fish, with properly steamed Brussel sprouts, spinach and celery, made rapid recoveries.

The up-to-date, scientific, practical dietarian does not adhere to any system of dietary, but when consulted about disease takes every phase of the patient's condition, occupation and environment into consideration, and then frames a diet-card from previous practical experience and physiological studies of food values.

The Sleep of Elementary School Children

In the course of his school medical inspections Malcolm Gross has made a consistent effort to determine (1) the amount of sleep obtained by elementary school children, and (2) the relation existing between the amount of sleep and their condition of health. Records for winter and summer were made on the lethargic appearance of the child, in behavior or otherwise, on whether the child has to be waked in the morning, and on the length of time the child sleeps. The tabulated results of these records constitute the material reported in the *Lancet* on the basis of which he decided it to be advisable in dealing with children up to the ninth year to add one-half hour all round to the time of going to sleep as given by the parents, and of one hour for children from twelve to fourteen years.

A large number of children are shown to have insufficient amount of sleep. His conclusions are that (1) elementary children do not get enough sleep in winter; (2) they get still less sleep in summer; (3) for the diminution in summer the Summer Time Act is partially responsible; (4) the Summer Time Act need have no effect where parental control is what it should be; (5) the ideal procedure is to improve parental control and knowledge and continue with summer. Until this improved control and knowledge is obtained summer time is detrimental to the vast majority of children. Parents should be encouraged to obtain longer sleep for their children the whole year round.

While the material in hand does not justify conclusions as to definite relationship between this lack of sleep and the presence of certain defects, such relationship is indicated and calls for further observation.

Emphasis is made of the fact that the habits of sleep in children in the groups aged twelve to fourteen are far less under the control of parents than they should be and it is difficult to get them indoors and to bed as early as they should. The percentage of children showing fatigue signs increases with the age of the children.

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The Hygiene of Pregnancy

By Our Own London Correspondent

IT IS now generally recognized that the hygiene of pregnancy is a very important factor in the well being of the race and an essential branch of preventive medicine. The woman who has enjoyed a healthy heritage and environment need not fear pregnancy. On the contrary, during this period she finds better health and enhanced vitality. Unfortunately, in these days of stress and strain, and especially in a country as is England, in which the majority of people are in overcrowded cities and towns and live and work under unhygienic conditions, the woman as a rule has neither enjoyed a healthy heritage nor environment. To go through the time of pregnancy is a strain on the reserve powers of the system. If these powers are there, all well and good; but if they are lacking the small store of reserve powers that exist are chained and vitality is diminished and each succeeding pregnancy further depletes vitality. The functionally sound pregnant woman is vitalized by her condition, while her functionally unsound sister suffers desperately during this period.

But it is not only the woman who suffers—it is also the unborn child. And this is what renders antenatal care one of the most important branches of preventive medicine. Heredity and early environment play large parts in the question. With regard to heredity, little can be done immediately or in the near future to improve the situation. The only hopeful sign of the times is that work is being done for infancy today in this and other countries which will favorably influence child bearing in the times to come. But environment can be dealt with and bettered almost at once. Included in the question of environment are some of the most insistent social questions of the day.

The British Royal Commission on Housing which sat in 1885 pointed out three evils of bad housing which have a most direct bearing on the health of the mother and her unborn child. It was concluded by this commission that: (1) Poor housing diminished personal cleanliness and physique. (2) The sickness rates were high in such dwellings. (3) The death rates were higher than in most favored localities.

It might have been said what is beginning to be realized now, that rickets, that bane of city children, is almost as much a disease of environment as of unsuitable and defective diet. Women born in such environment and whose childhood is spent under such conditions cannot be expected to bear healthy children and the deterioration of the race is progressive.

The water supply in some British cities and towns is deficient and inadequate, although on the whole the water supply in British urban districts is good. The nutrition of British women who live and work in cities and towns is bad. The working people of the country domiciled in industrial centers exist on a less nutritious and worse cooked diet than probably any people living under similar condition in any part of the globe. Lady Barrett, a most distinguished lady consultant and dean of the Woman's Medical School London, writing on the subject in the *Journal of State Medicine*, March last, says that she is anxious to urge three measures which, in her opinion, are among the most important for the relieving of the prolonged hours of work and faulty nutrition of the working mothers of many countries. These are communal kitchens and dining rooms, commercial laundries fitted with all modern mechanical appliances, and day nurseries available for the children of home-making mothers on washing days or during hours of recreation. Central heating and electric light in working class homes would also add greatly to the health and comfort of the whole family.

The maternity centers here have done much good and Dr. Eric Pritchard and others who have initiated and developed the system deserve well of the community, but the maternity centers have scarcely touched the problem of the small home, with its cooking for husband and children, the washing and drying in a small space, the costly storage of small quantities of coal and the problem of food storage or larder. All these, in the opinion of Lady Barrett, would be eliminated by the communal kitchen and the communal well fitted laundry.

With respect to the care of the woman during pregnancy, Lady Barrett highly applauds the establishment of ante-natal clinics which is going on so rapidly. At these clinics women can be examined early in pregnancy, and those whose health is at all doubtful can be kept under constant medical supervision. It is very desirable that the small ante-natal clinics near the homes of the women should form part of a maternity center which should provide educational classes, dinners or milk for expectant or nursing mothers where required, and dental treatment, so that the evil factors of carious or septic teeth may be eliminated during pregnancy and lactation.

Census of the Blind

GREAT interest is being shown all over the world in the figures of the United States Bureau of the Census of the Blind for 1920—52,617 blind persons, as against 57,272 in 1910, says Winifred Hathaway, Secretary of the National Committee for the Prevention of Blindness, in a recent issue of the *New York Times*. The National Committee for the Prevention of Blindness is naturally keenly appreciative of the comment on the report which suggests that a decrease in preventable blindness is indicated as a result of improvement in medical knowledge and of the education of the public. The Committee is confident from its experience and investigations that blindness from preventable causes, especially blindness from babies' sore eyes, has decreased perceptibly in proportion to the increase in population during the last decade. Indeed, if this were not so the Committee would be deeply conscious that its energies and the funds placed at its command had been misdirected.

It cannot, however, accept the figures of the census as even approximating the actual number of the blind. It has always contended that the census figures of 1910 were altogether too conservative.

In the United States census of 1920, New York state is reported as having a blind population of 4,205 persons. The New York State Commission for the Blind has nearly completed a registration of all blind persons in the state. To date 10,982 have been registered, with one county still to be heard from. The Commission does not consider this figure final, since verification of every name on the list by the field agent has not

Science demands economy in food consumption

In considering the scientific requirements for an adequate supply of good, healthful, wholesome food, the economic aspect of the problem cannot be ignored. If economy of production will insure a greater supply, then economy of production should be practiced in the interest of science.

For instance, granted that the public welfare demands an adequate supply of wholesome dairy products, the use of skimmed milk for cooking is an economic advantage because it adds just that much to the essential food supply. In this case it is also a scientific advantage in that it increases the use of dairy products in the diet.

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yet been made. The Commission has, however, verified the lists for the counties of New York, Bronx, Kings, Queens and Richmond, (comprising Greater New York) and finds a total of 5,556 blind persons. Thus in New York City alone there are 1,351 more blind than shown by the United States census for the entire state. Judging from the verifications already made, and allowing for all possible discrepancies, such as duplication of names, erroneous listing of one-eyed persons as blind, etc., the Commission is confident that the final lists will total well over nine thousand blind persons in the state—that is, more than double the United States census figures. Should the same proportion hold in other states, the list of the blind will more nearly approximate 105,000 than 62,617.

In considering these figures, several items must be taken into account: (1), that the figures of the 1910 census were evidently quite as conservative as those of 1920; hence though the actual number of blind in the United States at the present time does not reach the lamentable total of 105,000, this doubtless represents not only an actual decrease in number, but an even greater decrease in proportion to the increase in population; (2) that there was a great increase in the number of industrial workers employed in hazardous occupations in the decade, especially during the war; (3), that the war blind constitute a group the cause of whose blindness is, we trust confined to the decade.

The united efforts of national, state, and local safety organizations of the National Committee for the Prevention of Blindness, together with the improved conditions under which accident compensation is administered, are tending to reduce eye accidents in the industries, heretofore one of the chief sources of preventable blindness. Many public health agencies are directing their energies to the elimination of social diseases, another of the leading causes of preventable blindness and deterioration of sight. Efforts being made along other lines are too numerous to outline here. Recognition of the fact that blindness from preventable causes has decreased during the last decade despite the unusual consequences, direct or indirect, of a great war should encourage not only continued effort, but should give impetus to an even greater output of energy to eliminate every possible cause of needless deprivation of the power to see.

Dried Milk Used As Food

THAT the physician should know all of the facts with reference to as important a food as milk and should be the educator of the community with respect to the efficiency and advantages of methods used in its preservation is the opinion expressed through the pages of the *Boston Medical and Surgical Journal* by Dr. Timothy Leary, professor of pathology, Tufts Medical School, Boston. Further, on the basis of demonstrated fact the physician should be the advocate of drying as a method of preserving milk which, if universally adopted, would make as important an advance in prophylaxis as typhoid inoculation or diphtheria toxin-antitoxin injection. He should know the limitations of the process, however, and should not recommend as the exclusive food of a nursling, reconstructed milk from milk powder without the addition to the diet of an antiscorbutic agent, such as orange juice. He should further recognize that the reconstructed milk is as good a culture medium as fresh milk, and should therefore be prepared only at the moment needed, and with rigid precautions as to cleanliness.

It is evident from the findings reported by Dr. Leary that milk drying should do away almost completely with pathogenic bacteria present in the milk when drawn, *e.g.*, streptococci, and general use of dried milk should do away with this type of milk-borne epidemics. Mechanical devices should also be possible which would prevent any possibility of recontamination by handling. The average bacterial count of daily samples of reconstructed milk from all of the plants of the principal spray-drying milk companies in the world last year was six thousand bacteria per cubic centimeter. This is the count of highly certified milk. The changes produced in milk by powdering are: (1) Slight loss in acidity. (2) Soluble salts of calcium are converted into insoluble salts, affecting the action of rennet. (3) Lactose is unaffected. (4) Albumin and globulin are partly coagulated. Caseinogen is not coagulated, but all observers seem to agree that it is more digestible after heating. (5) Chemical changes in the fats are slight; possibly a slight degree of oxidation occurs. The lecithins are altered, but little is known as to the exact changes. The fat globules of reconstituted milk are generally larger than those of fresh milk. (6) Ferments are destroyed. (7) As to the solubility, various dried milks differ in their capacity for reconstitution. (8) The curd produced by rennet in reconstituted milk is flocculent and finely divided, in contrast to the firm, tough, and cohesive clot produced in raw milk.

The report of the British investigation of dried milk for infant feeding is quoted as saying that dried milk is, perhaps, "when all considerations are taken into account, the most generally useful of all the available preparations of cows' milk, this when dried milk is made carefully under hygienic conditions from a good quality of cows' milk." The observation was made that results of feeding to sickly infants, even when the condition was grave, have been admirable. The report goes on to say:

The physical and chemical changes produced by the processes used in the preparation of dried milk so alter its character that it is better borne by the infant's stomach than ordinary cows' milk, whether raw, boiled, or sterilized. The dried milk is easily and completely assimilated. It is palatable.

The drying of milk for general use would do away with all of the emergencies necessary in the handling of liquid milk. Saving the cost of refrigeration, special cars, breakable containers, and special delivery would save more than 50 per cent of the cost of the milk to the consumer. This would involve in addition a hidden source of cost which arises from the public inspection of the quality and cleanliness of milk as delivered.

Dr. Leary discusses at some length the vitamine content of dried milk preparations. Fat-soluble A is highly resistant to heat, though not to oxidation, and is retained apparently in large part by either method of drying milk. Water-soluble vitamine B is relatively insensible to heat, but susceptible to oxidation. It is not seriously affected by drying, and in the storage and handling of milk powder the loss of this vitamine should be very small. There is, however, ground for debate concerning the antiscorbutic vitamine, Water-soluble C. It is to be kept in mind in this connection that raw milk is not to be considered as necessarily having potent antiscorbutic qualities. Evidence from the clinics is unanimous as to the absence of scurvy on a diet of dried milk. Dr. Leary expresses the belief, however, that no diet should depend upon milk, raw or dried, for its antiscorbutic element, but that this substance should be supplied from sources known to be rich in it, such as orange juice.

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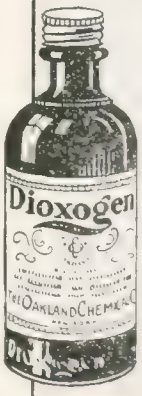

therefore, is universally recognized as the best and most effective peroxide of hydrogen, not alone because of its greater volume of available oxygen, which far exceeds U. S. Phar. requirements, but particularly because of its exceptional freedom from residual substances which would restrain in any way the free release—and full effects—of this all-important constituent.

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FROM THE FIELD

A conference on health education in the preparation of teachers, called jointly by the U. S. Bureau of Education and the Child Health Organization of America, will take place at Lake Mohonk, New York, June 26—July 1. Invitations to one hundred education and health workers especially interested in the subject have been issued.

The First International Congress on Mental Hygiene was held in Paris, June 1-4, under the auspices of the French League for Mental Hygiene and Prophylaxis. The program included among other subjects, mental tests for applicants for work, psychology as applied to education, and international agreement for research work in mental hygiene, and mental hygiene in the family.

At the sixth annual meeting of the American Congress on Internal Medicine held at Rochester, Minn., the following officers were elected for the coming year. President, Dr. Sydney R. Miller, Johns Hopkins University Medical School, Baltimore; vice-presidents, Drs. Henry S. Plummer, Rochester, Minn., and Stuart R. Roberts, Atlanta, Ga.; treasurer, Dr. Clement R. Jones, University of Pittsburgh, and secretary general, Dr. Frank Smithies, Chicago.

The National Society for the Study and Correction of Speech Disorders will hold its annual meeting as an allied association with the National Education Association in Boston, July 3-7. Former papers by officers and Massachusetts teachers of speech and ten five-minute papers open to general discussion will form the program for each afternoon. Demonstrations with maps and charts of the progress of the movement from coast to coast will be shown.

The Maryland Bureau of Child Hygiene to be organized in accordance with provisions of the Sheppard-Towner law and legislation passed by the last General Assembly of Maryland will start with a personnel consisting of a director and ten graduate nurses under plans formulated by Dr. John S. Fulton, Secretary of the State Department of Health. Headquarters will be in Baltimore.

Dr. Louis I. Dublin of the Metropolitan Life Insurance Company, New York City, gave an address May 18 before the Boston Association of Cardiac Clinics at the Children's Hospital, Boston. His subject was "Heart Disease in the Community." Dr. Paul W. Emerson of Boston also spoke on "Heart Disease in the Schools."

The South Carolina State Board of Health is furnishing toxin-antitoxin free of charge to all county health departments that are establishing free clinics at rural schools. In Charleston County alone, 2,500 toxin-antitoxin inoculations have been given since January.

The American Pediatric Society elected the following officers at its thirty-fourth annual meeting at Washington, D. C., May 1-3: President, Dr. L. Emmett Holt, New York; vice president, Dr. William W. Butterworth, New Orleans; secretary and treasurer, Dr. Howard Childs Carpenter, Philadelphia; recorder and editor, Dr. Henry L. K. Shaw, Albany, N. Y.; member of the council, Dr. W. McKim Marriott, St. Louis.

A special unit has been established at the Chicago office of the U. S. Veterans' Bureau, with a consultant and an assistant to handle cases pertaining to public health, which not only includes physicians and dentists, but also students desiring to enter colleges of medicine, dentistry, or pharmacy, hospital nurses, trainers desiring courses in roentgen-ray work, laboratory technicians, those desiring special courses in chemistry, biology or pathology, and similar branches including also osteopathy, optometry, and physiotherapy.

At a meeting of the governors of the Institute of Medicine, March 24, a committee was appointed to make recommendations concerning medical needs of Chicago. The committee reports the following needs: Study of concrete medical needs; need of certain classes for better hospital care; need for promotion of medical jurisprudence in its various phases, and the need for a better publicity and education in respect to medical matters. The committee also recommended that small committees be designated from fellows of the Institute to study particular problems and to report their results and recommendations to the governors; further, that the board of governors support the work now recommended by such financial aid as may seem necessary to secure the most desirable results.

Teachers of special classes for feebleminded and backward children from all parts of Pennsylvania met at the University of Pennsylvania to work out from their own experience a program for statewide care and training of feebleminded children.

Ontario Health Officers' Association held its eighth annual conference May 29 and 30, 1922 at the University of Toronto, under the presidency of J. W. Shaw.

At the annual meeting of the American Public Health Association held recently in Washington, D. C., the governing council appointed a general committee to reorganize the association after a majority of its members agreed with Dr. L. I. Harris, New York, that the Association was led and directed by corporate agencies in increasing numbers. The first meeting of the committee was held May 4, in New York. Other committees will meet throughout the country and the results will be compiled and placed before the next annual meeting.

The Eighth National Exposition of Chemical Industries will be held this year in the Grand Central Palace, New York City, during the week September 11-16 inclusive. Charles F. Roth and Fred W. Payne, Grand Central Palace, New York City, are managers.

B. E. Read, of the Department of Pharmacology, Peking Union Medical College, has published the minimum drug equipment suggested for country dispensaries in the *China Medical Journal*.

The Department of Public Health has established at the Philadelphia General Hospital five clinics, genitourinary, heart, prenatal, neuropsychiatric, and radiological, to meet the need for the care and treatment of cases which do not require bedside care, and for the purpose of preventing certain diseases by the early study and correction of physical defects. A medical social service department follows the cases closely.

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A provisional committee has been formed in England consisting of Sir Norman Moore, president of the Royal College of Physicians, Sir Charles Sherrington, president of the Royal Society, Sir John Goodwin, director-general of the Army Medical Service, and Sir George Newman, principal medical officer of the ministry of Hygiene. This will be similar to the American Committee for Mental Hygiene.

Acquisition and construction of rest camps in the various districts of the U. S. Veterans' Bureau for disabled war veterans are provided for in a bill introduced into the House of Representatives by Representative Gallivan. Five million dollars is appropriated to cover the cost of the undertaking under the jurisdiction of Col. Charles R. Forbes, director of the U. S. Veterans' Bureau.

The French Ligue d'Hygiéne Mentale held a congress at Paris, June 1-4, 1922, at the Hotel des Sciences Savantes, 28 Rue Serpente. This served as a preface to the first International Congress of Mental Hygiene which is being arranged to convene in the United States under the auspices of the New York Committee of organization of the League for Mental Hygiene in America.

A new $30,000 health center is to be built in Alameda, Cal., under the auspices of the board of public utilities. It will be completed in September. Funds for this purpose will be taken from the surplus of the municipal electric light system.

The American Psychiatric Association held its seventy-eighth annual meeting at Quebec, Canada, June 6, 7, 8, and 9, in the Parliament Building and Hotel Chateau Frontenac. Albert M. Barrett, M. D., of Ann Arbor, Mich., is president of the Association.

The Illinois State Department of Public Health, with the approval of the Board of Public Health Advisors, has adopted a Railway Sanitary Code. The Code regulates the transportation of persons having communicable disease, the water and ice supplies for railway trains, stations, offices and shops, the cleaning and disinfection of cars, the sanitary condition and control of cars while in service, and the sanitary conditions at railway stations, railroad construction camps, offices and shops.

A joint committee of men and women representing the medical and teaching professions has been formed in England to inquire into the present physical education of girls with particular reference to its results beneficial or harmful either during girlhood or in later life. Dr. G. F. Still is chairman. The bodies represented are: Royal College of Physicians, London; Royal College of Surgeons of England; British Medical Association; Medical Women's Federation; British Association for Physical Training; Ling Association; National Union of Women Teachers; Association of Assistant Mistresses in Secondary Schools; Private Schools Association, Inc., and the College of Perceptors.

The Congress of Radiology and Physiotherapy was held in London, June 7-10, under the presidency of Sir Humphrey Rolleston and under the auspices of the section of electrotherapeutics of the Royal Society of Medicine and the British Association for the Advancement of Radiology and Physiotherapy. Dr. Beclere, Paris, Dr. Murdoch, Brussels, Dr. Peremans, Antwerp, and Drs. Colombier and Tribout, Paris, will be among the speakers.

The Chamber of Commerce of the United States is sending to its 1,400 member organizations a school health and physical education report.

Dr. Mary Moore Hoyt has been appointed director of nutrition work at the Tuberculosis Association of Rochester and Monroe County, New York.

The curative workshop for convalescent patients conducted by the Tuberculosis Association of Rochester and Monroe County, New York, has attracted wide attention. Credit for the success of the project has been given to Miss Elizabeth K. Wise, director of occupational therapy, and to Mrs. Ruth B. Harter, director of occupational therapy for the State Committee on Tuberculosis and Public Health.

"Life Insurance Laws of 1921" in volume form is now being mailed to companies who are members of the Association of Life Insurance Presidents. The volume contains the laws relative to life insurance passed in the States and Canada.

Henry S. Dennison, president of the Dennison Manufacturing Company, has been appointed by Postmaster General Hubert Work to the office of Welfare Director recently relinquished by Dr. Lee K. Frankel of the Metropolitan Life Insurance Company. Mr. Dennison is well known as a pioneer in the introduction of industrial welfare methods which are both humane and efficient. Dr. Frankel is retained in the Department in the capacity of advisory welfare director.

The Davenport Bill for "safeguarding motherhood and protecting the health of infants and children," recently made a law in New York, converts the existing Division of Child Hygiene into a Division of Maternity, Infancy and Child Hygiene, and makes available for its use (together with the amount in the regular appropriation for the Child Hygiene Division) the sum of $160,000. This is approximately the amount which would have been made available if the State had accepted the provisions of the Sheppard-Towner Act. The functions of the new Division include the following: Making surveys and studies of local conditions affecting the health of mothers and children; giving advice to different localities as to providing adequate care for mothers and children to whom such care is not otherwise available; holding health consultations in the rural districts; educational work in the hygiene of maternity and infancy; supervision and training of midwives; prevention of blindness in infancy; and care of crippled children.

Women who work with their hands for their living will again be students at Bryn Mawr College this summer at the second term "for women in industry." The school last year had an enrollment of 80, and for the term this summer, from June 15 to August 10, applications of 100 candidates were accepted. Garment and textile workers have the largest representation in the list of accepted candidates. There are nineteen garment workers and fifteen textile workers. Other trades represented are: Telephone workers, seven; electrical workers, six; tobacco and cigarettes, six; printing, five; shoes, five; millinery, three; gloves, two; manufacturer of typewriters, two; watches, two; laundry, two; neckware, corsets, metals, candy, kodaks, automobiles, paper boxes, bleachery, chemicals and soap, one each.

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A municipal maternity dispensary has been organized, maintained, and operated by the Los Angeles Health Department. This Service was made necessary by an increasing number of requests that some provision be made for the care of needy women at the time of their confinement. In 1915 the City Health Department organized the maternity service as one of the divisions of the Department, with the stated object of "providing competent medical attendants for the care of needy mothers during pregnancy, labor, and until mothers no longer need our services."

A national organization for the prevention of accidents was formed in New York City last month. Dr. Franklin Lawson, 7 West Forty-second Street, New York City was elected president and administrative director. Dr. Clayton Powers Bennett and Arnold A. Schwartz are vice presidents; Charles F. Hammond, secretary and Kenneth Patterson, assistant treasurer. The honorary advisory board is composed of Dr. Joseph M. Bennett, Providence, R. I.; Walter C. Carter, C. Arthur Clark, Jr., James B. Clews of Henry Clews & Co.; Frederick Cook, Secretary of State of Massachusetts; Dr. Colis S. Carter, New York; Robert Fisher, Boston, Mass.; Dr. D. H. M. Gillespie, accident surgeon, New York Central Lines; Eugene C. Hultman, Boston; Senator Frederick Hale of Maine; Senator Henry Wilder Keys of New Hampshire; Dr. Russell McCausland, Boston; Norris Oliphant of James H. Oliphant; Theodore Roosevelt, Assistant Secretary of the Navy; Senator Thomas J. Walsh of Montana, Senator David J. Walsh of Massachusetts. The charter of the organization has been approved by Supreme Court Justice Bijur and granted by the State of New York. It was filed in the County Clerk's office on May 1. The society will study the mental and physical causes of all kinds of accidents and the various ways and means of preventing and avoiding them, and will spread this knowledge through its members and the various channels of nationwide publicity, including the press, screen and radio.

"Comparative Antiscorbutic Values of Milk," a review of the literature by J. M. Johnson, Chemist, and C. W. Hooper, Pathologic Physiologist, United States Public Health Service appears in *Public Health Reports* for April 28.

The Technical Photographic and Microscopical Society was fully organized at a meeting held in the Chemists' Club, New York, May 10. James McDowell, of Sharp & Hamilton Manufacturing Company, Boston, was elected president; John H. Graff, of the Brown Company, Berlin, N. H., and Bennett Grotta, of the Atlas Powder Company, Tamaqua, Pa., were chosen vice-presidents, while Thomas J. Keenan, editor of *Paper*, 251 West Nineteenth Street, New York, was elected secretary-treasurer. An active committee on membership and publicity was appointed consisting of A. E. Buchanan, chairman; Charles N. Winter, D. H. Killefer, Douglas G. Woolf, Ernest Eberhard, J. A. Scheick, and M. D. Crawford.

The Bureau of Nursing Education of the Wisconsin State Board of Health is endeavoring to spread knowledge of the necessity for all nurses practicing in that state as graduate nurses to possess a re-registration card issued by that office. The new nursing education law requires an annual re-registration by such nurses to make their practice legal. It is specifically required that all who work as trained, graduate, certified or registered nurses shall hold a certificate from the State Board of Nurse Examiners. The attention of nurses, especially the older graduates, is called to the fact that if their certificates have never been recorded with the county clerk they should do so at once, as the holders cannot be called registered until the law has been complied with. All registrations expire on December 31 of each year.

The report of the examination of fifty males by William Finkelstein and Jesse F. Williams, New York, as to their circulatory efficiency by the Schneider test and as to their physical efficiency by the Sargent test in an endeavor to determine the existence of a correlationship is contained in the *Journal* of the American Medical Association. A very definite correlation was found. Though not perfect (perfect correlation = 1), it was high for such diverse tests. The high correlation shows that cardiac efficiency is probably a good indication of general physical efficiency. It will probably be necessary to revise the Schneider test to allow for the normal variation in pulse rate in the age ranges before and during adolescence. The Schneider test was evolved on adults. Its applicability to adolescents and pre-adolescents remains to be determined.

All summer resorts and camps bordering the lakes and streams of Wisconsin are inspected annually by competent men, as to the sanitary condition of such camps according to a report of C. A. Harper, M.D., State Health Officer. Special attention is given to water supply and disposal of garbage and sewage. This work is done in the summer months by the four hotel and restaurant inspectors in conjunction with the sanitary engineering department. The Highway Commission has provided and is making additional provisions for camp sites adjacent to and along all the main highways of the state. Pure wells have been provided; crude stoves are constructed and kindling is provided; facilities are also provided for taking care of the waste from the camp. This has been useful for summer tourists when the camps are crowded. These tourists bring their own tents and cots. Adjacent to many of these camp sites are vegetable stores and some types of grocery stores which are equipped in the summer.

The Associated Out-Patient Clinics of New York City elected the following officers April 6 to serve for the coming year: President, Robert Olyphant; vice-president, Alexander Lambert, M.D.; secretary, Willis G. Nealley, M.D.; treasurer, John Sherman Hoyt. The following were chosen as members of the executive committee: Alexander Lambert, M.D., chairman; E. H. Lewinski-Corwin; Albert E. Lamb, M.D.; Charles F. Neergaard; William P. St. Lawrence, M. D.; Dudley Stetson, M.D.; S. H. Wadhams, M.D.

A new quarterly in the field of general medicine, neurology, and pediatrics, *Medicine*, made its debut May, 1922. The periodical is being edited by David L. Edsall, Harvard Medical School, John Howland, Johns Hopkins Medical School, with Paul D. White, Massachusetts General Hospital, as associate editor. Williams & Wilkins Company, Baltimore, are the publishers.

Dr. George A. Dame, director of the Florida Bureau of Communicable Disease, is making, through the division of field service, brief surveys of each county, covering about 150 physical, sociologic, and sanitary questions that frequently arise in the directing of public health activities in the state.

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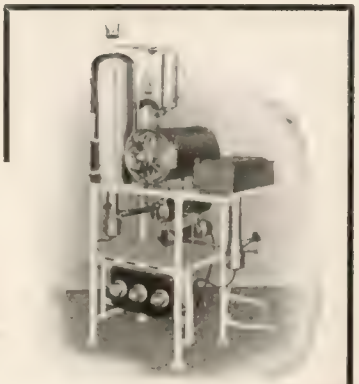

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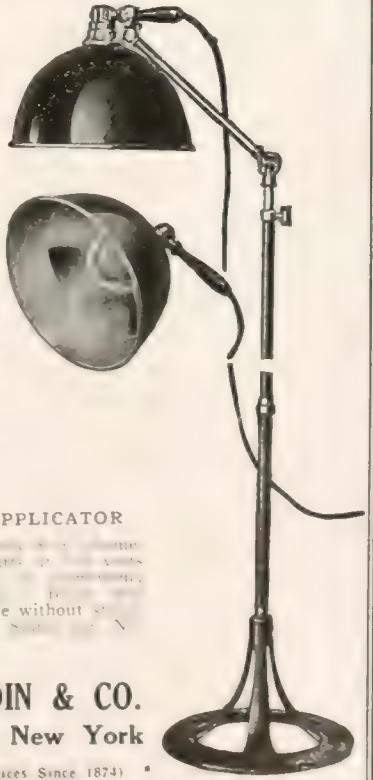

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Vocational Rehabilitation Conference

The First National Conference of State Workers in Vocational Rehabilitation of Persons Disabled in Industry or otherwise, met at Hotel Statler, St. Louis, Mo., May 15, 16, 17, 1922. Workers attending the conference are, from left to right, bottom row: Robert H. White, Leonard B. Job, L. J. Clayton, George E. Horton, D. W. Rockey, H. B. Cummings, C. H. Schopmeyer, Chas. W. Briles, George W. Redvis, J. C. Wright, John A. Kratz, Herbert A. Dallas, H. L. Stanton; middle row: Claude H. Anderson, Alice K. Bough, Lillian H. Davis, Davis M. Cangney, J. R. Jewell, C. A. Fulmer, C. W. Woodruff, H. Harvey, B. R. C. H. Saylor, W. J. Moore, O. M. Sullivan, Kenneth O. Snortum, E. E. Brackett, D. F. Burton, John F. Moore, John C. Shaw, Lloyd A. Henry, Robert O. Small, F. E. Laud. Top row: Ervine Meyer, Sam. E. Woods, F. J. Hubbard, C. M. Le Bow, Marguerite M. Lison, Mrs. Mary S. Barker, Willis W. Grant, W. F. Shaw, Ernest L. Schneider, M. F. Fauekes, Mary Anderson, Tracy Copp, S. S. Riddle, Joseph Spitz, F. T. Struck.

Wells: Chemical Pathology

Chemical Pathology by H. Gideon Wells has established itself as a classic, and the new edition should be welcomed by everyone. The book can be considered the pioneer work in this field and should be on every physician's shelves. In the new edition many of the chapters have been brought up to date and special attention can be called to the one contributed by Woodyatt on "Carbohydrate Metabolism." It is a great pleasure to note the full bibliography appended to each chapter and the excellent index.

W. B. Saunders Company, Philadelphia, 1920.

American Child Hygiene Association

This volume constitutes a report of the transactions of the eleventh annual meeting of the American Child Hygiene Association held in St. Louis, October 11 to 13, 1920. It contains a number of valuable papers on various phases of child welfare by workers in the field. The discussion of the papers is at times as illuminating as the papers themselves.

Psychoanalysis in the Service of Education

A series of lectures by Oskar Pfister, a Protestant clergyman of Zurich, brought out in the form of a book for educators under the title "Psychoanalysis in the Service of Education," deals with the value of psychoanalysis as a method of freeing the autonomous personality from inner inhibitions and extending the field of conscious control. He is enthusiastic in his treatment of the subject, but presents a good case and his book has great practical value.

Though there might be some reservation as to whether psychoanalysis belongs to the province of the physician or the pedagogue, Pfister is convinced that "teachers are the very men for this undertaking." Direct analysis of healthy children, he says, lies entirely in the domain in which the educator alone has the responsibility. He does not, however, advocate analysis of a sick child without the permission of a medical man, preferably one versed in psychoanalysis. His charge that "most physicians, on account of their one-sided physiological and materialistic training and orientation, on account of their total ignorance of mental processes, are usually highly unsuited for the treatment of the so-called psycho-neuroses," would scarcely appear tenable in view of the magnitude of the literature on the subject at the present time. If the success of the method depends upon a broad view of the "life-totality of analytic subjects," physical as well as psychic factors are involved. If an acknowledged therapeutic measure is to be turned over to educators, some standard of practice and of efficiency would seem to be called for.

Moffat, Yard & Co., New York, 1922.

Books Received

THE MECHANICS OF THE DIGESTIVE TRACT. By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, University of California Medical School, Octavo, extra cloth, pp. 192. Paul B. Hoeber, New York, 1922.

PROTEIN THERAPY AND NON-SPECIFIC RESISTANCE. By William F. Peterson, M.D., Associate in Pathology, University of Illinois, College of Medicine, Chicago, Ill., 307 pp. The Macmillian Company, New York, 1922.

TOWN THEORY & PRACTICE. By W. R. Lethaby, Raymond Unwin, George L. Pepler, Sir Theodore Chambers, and R. L. Reiss. Edited with an introduction by C. B. Purdom, pp. 136. Benn Brothers, Ltd., London, 1921.

CHEMICAL DISINFECTION AND STERILIZATION. By Samuel Rideal, D.Sc., and Eric K. Rideal. Cloth, 8vo, pp. 313. Edward Arnold, London, 1921.

TEXT-BOOK OF EMBRYOLOGY. By Frederick Randolph Bailey, and Adam Marion Miller. Cloth, 8vo, pp. 663, illustrated. William Wood & Co., New York, 1921.

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National Child Health Council Issues Report

The first report of the National Child Health Council is issued in the form of a pamphlet entitled "For the Child." Formed in March, 1920, the National Child Health Council was a pioneer effort in the field of national coordination. The Council was formed of three organizations whose work is distinctly with children—The American Child Hygiene Association, The Child Health Organization of America, and the National Child Labor Committee—and three whose work of necessity concerns itself largely with child health—the American Red Cross, the National Organization for Public Health Nursing, and later, the National Tuberculosis Association.

It is too early for this report to be the annals of achievement, but the several committees are at work on legal, educational, nutritional, and general advisory matters having to do with the complete and economical handling of child health conditions all over the country. A practical demonstration is under way in Mansfield and Richland County, Ohio, to test in practice what may be considered as essential for complete service to children, its cost, and its potential benefits. Meanwhile plans are under way to survey the field and marshal the facts for future planning. On the whole the enterprise may be considered a truly scientific effort to take care of the child, and its progress report reflects great credit to the vision of Courtney Dinwiddie as Executive Secretary and the other members of the executive organization.

Bacteriology by Estelle D. and Robert E. Buchanan

"Bacteriology," by Estelle D. and Robert Earle Buchanan is a very simple, elementary one but probably fulfills its purpose as an introduction to bacteriology for students in home economics courses.

One cannot help but feel that the first hundred pages in all textbooks of bacteriology are wasted as they all give the same fundamentals in the same way. Students could all be referred just as well to bacteriological textbooks of ten or twenty years ago and these one hundred pages devoted to the newer bacteriology. This is especially true of the textbook which is being reviewed.

The Macmillan Company, New York, 1921.

The Life of Jacob Henle

Until recently medical history was written, as a rule, in dry incoherent style. It seems to have been the prevailing opinion among medical men that medical history like medicine itself must be scientific in that it must be chronological, a series of dates and facts with no human action in it.

Victor Robinson is one of the few medical historians who combines medical facts with human action and who views the subject under discussion not as an isolated fact or person but as a part and parcel of human activity in a historical development. This is evident in his book "Pathfinders of Medicine." It is strongly evident in his "Don Quixote of Psychiatry" and this is again evident in "Jacob Henle." Not everybody likes that type of historical writing. Most readers like to read something correct as to facts and written in a literary and human style as well.

Jacob Henle was a great anatomist. He was, in addition, however, also a literary and musical genius and led a highly romantic life. Victor Robinson should be complimented on drawing a picture of Jacob Henle, the scientist and man.

Medical Life, New York, 1921.

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Diseases of the Ear, Nose and Throat in Childhood

Medical and lay people are used to textbooks on the diseases of the nose and throat in large voluminous books written in very technical language. This is why the average nurse or social worker knows very little about the hygiene or diseases of the ear, nose, and throat. Still it is important that any one who deals with children know something about it.

Douglas Guthrie, M.D., has performed good service by writing a simple and comprehensive book on the subject. In it he gives the anatomical, physiological and pathological facts that are most essential to physicians, nurses, and social workers. The physician, as a rule, does not have to go to books of the type written by Guthrie for information, but to the nurse and social worker, this book will be a source of information and enjoyment.

The book is written in a simple and pleasant style. It is in addition illustrated in black and white. The book is to be recommended to any one who seeks reliable information on the subject.

A. & C. Black, Ltd., London, 1921.

Mentally Deficient Children—Treatment and Training

This book by G. E. Shuttleworth, M.D., and W. A. Potts, M.D., now in its fifth edition, has been a leader in its field since the first edition was published in 1895. The book includes a comprehensive historical review of the subject, and chapters on pathological classification of forms of mental deficiency; etology, diagnosis, and prognosis; the psychopathies of puberty and adolescence; medical examination of mentally defective children under the regulations of the board of education; the treatment of mentally deficient children; educational training; industrial training and recreation; moral training; results and conclusions.

The appendices include: list of institutions, etc., recognized under mental deficiency acts, and of M. A. B. institutions, institutions in Ireland and British Dominions; list of state public institutions in United States of America; table of speaking exercises; time tables I. C. C. special schools; form of medical certificate under mental deficiency act; Binet-Simon tests of intelligence.

The authors have brought the subject of mental diseases and psychotherapy up to date. The illustrations are vivid, many new ones having been substituted for the old. The list of the State public institutions for feeble-minded in the United States has been rewritten and has been supplied by an authority on the subject, Dr. Walter E. Fernald. As far as we know, there is no other book on the subject to rival that of Shuttleworth and Potts.

P. Blakiston's Son & Co., Philadelphia, 1921.

The Practice of Urology

"The Practice of Urology" by Charles H. Chetwood, M.D., is a text well worth reading. It is pleasingly written and logically compiled; complete and thorough in matters of urology, but carefully avoiding other fields, particularly gynecology.

Throughout the book the author stresses the fundamentals and shuns novelties. He bends toward the conservative and established practices but gives due regard to innovations that have proved worthy of consideration. It is a book that one can read easily and with confidence such as is not often so readily inspired by a textbook.

William Wood & Co., New York, 1921.

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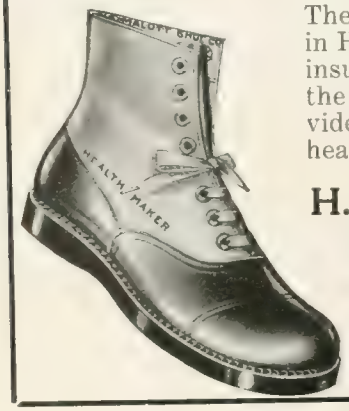

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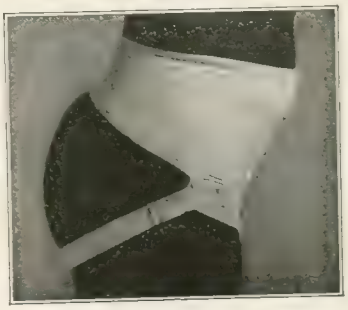

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THE NATION'S HEALTH

(Continuing Modern Medicine)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV | Chicago, July 15, 1922 | Number 7

Popular Misconceptions on Food Poisoning*

A PHYSICIAN received a phone call at eleven o'clock at night from a young woman, in this particular instance a trained nurse, who told him that for thirty-six hours she had been suffering from violent stomach ache subsequently to eating some unripe fruit. At the onset she experienced nausea and vomiting and immediately took a dose of castor oil, which was followed by some diarrhea. The pain remained very severe but the patient thought it would pass away as soon as the oil had worked. The physician, wise to the ways of patients and to such stories, immediately jumped into his car and rushed over to see the patient. The temperature was only 99½ degrees, the pulse 90, and the abdomen typical of a ruptured appendix, calling for immediate operation. This was immediately done and, since the patient in question was lucky, she recovered.

Popular Food Fallacies

This is not an unusual experience in the life of any practitioner of medicine. Unfortunately it is a common trait of human kind to trace back any gastro-enterologic disturbance to some food previously taken. It is usual to see acute appendices, gall bladders, or ulcers of the stomach, diagnosed by the suffering patients as being merely some form of food poisoning. It is possible even to encounter self-diagnosed cases of ptomaine poisoning, a disease which practically never exists, and which would better be entirely left out of the minds and thoughts of both physicians and patients.

Food poisoning as such is extremely rare. Occasionally an epidemic of food poisoning occurs, always involving a group of individuals who have partaken of the same food. If, however, a group of eight people eat identically the same meal and a few hours afterward one of them becomes stomach sick, it is quite illogical to assume that the food ingested had anything at all to do with the sickness. The average stomach can handle a great variety of so-called indigestible substances and when food upsets an individual the cause is usually to be sought in the individual, and not in the food. The popular conception that food causes trouble to the individual is based on the psychological desire to find a cause for an effect, and food recently ingested is at once associated with present discomfort. A farmer plants some seed in two adjoining fields and only one of them produces a good crop. He necessarily concludes that the soil of one lot is fertile while the soil of the other is not productive; he does not say that the seed is responsible for the lack of growth in the poor lot. The same principle must be grasped regarding the subject under discussion. Many conditions in the individual may cause food to disagree with him. A man in the pink of physical condition who usually can eat a meal from soup to nuts will find that at the end of a nerve-racking, exhausting day, when his whole system is fatigued, he will not be able to eat such a meal without distress. People who have chronic, growling appendices—which means simply that more or less latent sub-acute appendicitis which once in a while sets up a roar—are subject to attacks of indigestion. One man personally known to us was being treated for intestinal indigestion. He subsisted for years on a very carefully planned diet which made a semi-invalid of him, but became perfectly normal in regard to his food after the removal of a chronically inflamed appendix. Another man, following the type of the nervously fatigued or tired business man, was utterly unable to handle foods properly and was under constant treatment for stomach trouble. This man never knew what exercise meant, paid no attention to his bowels, was in the habit of making business notes in the midst of a meal, and, naturally, did not give his gastro-intestinal tract a fair chance. After he was studied and put on the path of right living, food became a pleasure, and the very things which upset him the previous month were eaten with relish and completely digested after he took up golf.

Food Fears and Idiosyncrasies

Ulcer of the stomach is at the bottom of many of the so-called food poisoning cases. An ulcer may produce very active symptoms which allow of no mistake in diagnosis. But again an ulcer of the stomach, like a chronically inflamed gall bladder, may produce a train of rather vague stomach and intestinal symptoms which the individual cannot definitely analyze and which makes him fear foods of various kinds. These individuals, if they eat a plate of ice cream or a broiled live lobster, will be distressed and will invariably tell the tale that they are poisoned by certain foods. As soon as the underlying condition is cleared up, food takes its proper place in their lives and, with the exception

*The fifth of a series of articles on "Popular Medical Misconceptions," beginning with the March issue of The Nation's Health.

of certain restrictions made necessary by the disease, they are perfectly happy in their choice and use of foodstuffs.

Enough has been said to emphasize the point that when individuals are affected unfavorably by certain foods, it is usually some fault of the individual and not of the food. When a group of individuals are upset by some food an entirely different condition is present because in this instance there is mass evidence that the same food is disturbing a large number of normal individuals.

What these conditions are need not be detailed. Epidemics due to infected meat and olives are well known. Careful studies in dietary deficiencies are revealing more and more evidence that such deficiencies may produce states of ill health in groups of individuals. But it cannot be reiterated too often that any individual who says that food of any kind is poisonous or complains of stomach-ache, diarrhea, or other symptoms with reference to the gastro-enterological tract is most likely suffering from a definite pathological lesion somewhere in the body. If the trouble is acute, far and away the largest percentage of individuals have an acute appendicitis, a gall bladder colic, or an ulcer of the stomach, conditions which call for immediate medical attention. If the underlying condition be acute appendicitis, no one needs to be warned that the knife and only the knife can save life. Therefore it is necessary for both professional men, who are still too willing to accept the patient's diagnosis of food poisoning, and for the individual himself, to assume that ptomaine does not exist and that the incidence of individual food poisoning is as rare an entity as is met with in medical practice.

Safeguarding Life and Health on Railways

By RALPH BUDD, President, Great Northern Railway Company, St. Paul, Minn.

SAFEGUARDING public health on the railways of the United States today is a highly efficient procedure strictly confined to the rules of medical science as worked out and standardized under what is known as the United States Railway Sanitary Code.

Previous to this standardization of railway health rules in 1920, the various railways protected the traveling public's health under the health laws of the different states through which they operated. Medical men found an utter lack of uniformity among these laws of the several states and also among the many railways on the subject of sanitary regulations. As a result of this lack of uniformity there naturally was much confusion and there existed a great many obstacles to successful enforcement of rules for safeguarding public health. For instance, in many adjoining states the regulations were in conflict and this made a difficult situation and one quite illogical in many respects. The matter was brought to the attention of all the state and territorial health officials with the result that a committee was appointed and a uniform sanitary code was drafted and approved by the Surgeon General of the United States Public Health Service. The result is that the public is better protected while traveling on railways today than it is in any other place of congregation, theater, church or any other public place not excepted.

The railway sanitary code is federal law. It covers the transportation of persons having communicable disease, maintenance of water and ice supplies in passenger cars, cleaning and disinfection of all railway cars, sanitary safeguards in stations, construction camps, general offices, shops, ticket offices.

The Great Northern Railway may be classed as one of the pioneer transcontinental lines in the matter of safeguarding public health. It became an early necessity for this line to recognize the need of stringent sanitary measures to protect the traveling public as the result of its Asiatic steamship connections on the Pacific Coast.

Employees in the dining car service undergo physical examinations before entering the service and at frequent intervals thereafter. Ice and chill boxes are sterilized at the end of each trip. Food is served in individual containers whenever possible.

The strict lines of health safeguards established by the Hill line years before the standardization of health laws effected by the United States Sanitary Code served as a model for Northwest carriers. While it is true that this condition was due in a measure to the strictness of health laws of the states through which the Great Northern operates, the chief factor always has been the unfailing sanitary efforts of the Hill line's efficient corps of medical men under the supervision of an exacting surgeon general who early saw the necessity of stringent methods because of health dangers incident to the company's steamship connections with Asiatic ports.

Most of the other transcontinental lines observed sanitary measures just as strictly before the sanitary code was standardized. It was the smaller inland systems that were lax in some respects. But today all the public carriers are operating under this standardized code and the traveling public is equally protected anywhere it goes upon railway trains in the United States.

In other days disease probably was spread broadcast in some instances as the result of an employee or passenger getting on a train with a communicable illness. It is a standing joke today in medical circles that about twenty years ago a colored porter with smallpox gave the disease to people from San Francisco to Chicago and that passengers making eastern connections from his train there carried the disease on to New York City. With the present system of check on communicable disease, such a thing would, of course, be impossible today.

Dining and sleeping car crews today undergo physical examination on entering the service and at frequent intervals thereafter. Sanitary conditions on dining cars are safeguarded by constant application to the subject on the part of all who are connected with the service. Ice and chill boxes are cleaned and sterilized at the termination of each trip. Separate compartments are provided for individ-

The dining car of the Great Northern showing minute attention to cleanliness.

ual foods, one, for instance, containing nothing but fish, another butter, fruits in another compartment, etc. All milk is served in individual bottles and the product is not exposed during its journey from the cow to the consumer. Waiters are clothed from head to foot in clean white linen each time they go on duty. Passengers are provided with clean linen for each and every individual service. The dish and glass washing department is very thorough in every detail, providing positive prevention of communicating disease. All dining cars are equipped with door and window screens to exclude the obnoxious fly. Electric fans in the body of the car distribute the pure fresh air entering through the window screens, assuring comfort on hot days. Drinking water is protected by being carried in tanks that are sterilized at terminal points. Sanitary water pitchers on dining tables exclude all foreign objectionable matter and pure clear ice is used for water glasses.

In sleeping cars the passengers are surrounded with every conceivable protection. There is no contact with anything that is not clean. Three sheets 63x90 inches are placed on every bed. Blankets are laundered and sterilized. Mattresses are vacuum cleaned and aired at terminals. Carpets are swept with vacuum carpet sweepers every day en route. Porters are attired in clean white linen. The drinking water tanks are sterilized at every terminal. Sanitary drinking cups are furnished free. Pure clear ice is handled by porters using ice tongs, never touching the ice with their hands. Lavatories are disinfected daily with germ-killing solutions that destroy and still are not objectionable to the most sensitive person. Wash bowls of German silver are kept scoured and polished and therefore clean at all times. Smoking compartments are cleaned often and thoroughly. Cuspidors are equipped with sanitary fiber lining, these being changed often and therefore are kept clean and sanitary.

During the latter part of 1918 the Great Northern Railroad organized a Safety Section for the purpose of eliminating accidents causing death and injuries to its men and patrons. The Superintendent of Safety of the Great Northern says:

The present Safety committees, serving at each of the division points and in each shop on the system were organized in January 1919. Our committeemen represent each craft in railroad service. We have 452 men serving on committees which meet once each month at their respective Division points or shops. During the years 1919, 1920 and 1921, these various committees made 7,651 recommendations for the elimination of dangerous practices and conditions, 97 per cent of which have been accepted and put into effect.

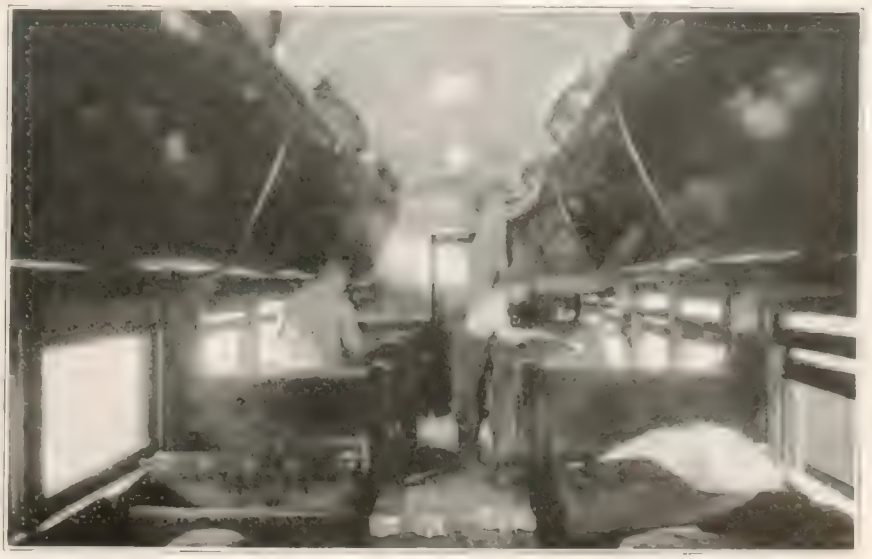
Although we have had an increase in business and locomotive miles in the years 1919, 1920 and 1921 as against the year 1916, 1917, and 1918, we have been able to show a marked decrease in the number of persons killed and injured, as following figures will indicate:

76 less employees killed, decrease of 38 per cent
3732 less employees injured, decrease of 17 per cent
28 less passengers killed, decrease of 100 per cent
502 less passengers injured, decrease of 36 per cent
73 less outsiders killed, decrease of 32 per cent
229 less outsiders injured, decrease of 33 per cent

The fact is generally accepted that a large majority of all accidents are preventable and a large part of them are due to dangerous and thoughtless practices and not to defective machines, structures, and equipment.

It has been the aim of the Safety Department of the Great Northern Railway to impress upon the employees the importance of the attention to duty and we feel that the movement has been successful in no small measure.

In the safety meetings mentioned the employees are encouraged to bring in their complaints; the complaint will be gone over and if the complaint or suggestion is found to have merit, immediate action is taken and the matter is rectified. But if the suggestion or complaint is found to be impractical, the employee is told so and the reasons why. We feel that in



Passengers are surrounded with every conceivable protection on sleeping cars. Mattresses are vacuum cleaned and aired at terminals and carpets are swept with vacuum carpet sweepers every day en route.

Water coolers are cleaned and sterilized at the end of every run. Ice is always handled with tongs and never touched by hands.

this way when the employees see that their suggestions are given consideration by the management it brings a feeling of cooperation.

An analysis of the latest Interstate Commerce Commission figures on the annual accident records of all railroads in the United States prepared by the Committee on Accident Statistics of the American Railway Association shows that fewer people were killed in 1920 than in any year since 1898. Although the total number of employees in the railroad service is several times greater than in 1891, yet the fatal injuries to employees in 1919 and 1920 were less each year than they were twenty-nine years ago. For each passenger killed in railroad accidents last year almost as many as the total population of New York City or five million passengers traveled with complete safety.

On the Great Northern Railroad during the years 1919, 1920 and 1921, or since the inception of our present Safety organization we carried 26,352,582 passengers without a fatal accident. We attribute this in the first place to the careful manner in which the equipment is inspected, and secondly to the vigilence and obedience to rules and regulations by train and enginemen.

The Rat a Social Menace*

By CHARLES V. CRASTER, Health Officer, Newark, N. J.

ALTHOUGH there are two main species of rats, the black and brown, the brown rat, often mistakenly called the Norwegian rat, is by far the more numerous and important. The brown rat is really a native of China and his worldwide distribution is the result of successive waves of invasion westward across Europe and finally in merchant ships to America and the Antipodes. Until the year 1727 the black rat lived unmolested in Europe, in which year it is recorded that numerous swarms of brown rats were observed swimming across the River Volga. The reason for the invasion of this rat from Asia was probably the need for a new food supply for the rapidly increasing rat population.

Larger, fiercer and more omnivorous than the black rat, it quickly established itself in Europe and the British Isles, slaying, devouring and driving the more gentle black rat before it until the latter leads a precarious and uncertain tenure of life in places where the brown rat cannot reach it. Many stories are told of the fierce and ruthless character of the brown rat. Although an herbivorous animal it will eat anything, and when hard pressed for food readily devours its kind.

It is extremely prolific and the rate of increase depends only upon the opportunity for an abundant food supply. When forced by starvation rats will migrate in immense troops in search of food. These migrating hordes are reported from time to time from all parts of the world.

There is also an annual migration of these animals from the cities to the countryside farms and lanes attracted by the green food and presence of smaller game. A return to the cities takes place in the fall when the outside food supply fails.

There is no human foodstuff that the rat will not eat readily and indeed its voracity is extraordinary. Not only is the loss of food stuff for rat sustenance great, but the accompanying destruction of food supplies reaches enormous proportions. Not only foodstuffs of all kinds are ruined but great damage is done to property by the destruction of woodwork, masonry, and plumbing. It is estimated that the total cost for the number of our rat population amounts to one hundred and eighty million dollars per year, or one dollar and eighty cents per person in this country, although indeed, it is calculated that the loss involved represents the constant effort of more than two hundred thousand men to produce the materials consumed and destroyed by rats. It is difficult to estimate the rat population in America, but it is conservative to say there are two or three rats to every person in North America. According to Lantz of the United States Bureau of Biological Survey "the destruction wrought by this vast horde of rodents is far greater than that wrought by lion, tigers, wolves and all other noxious mammals together. The damage done by any species of insect is usually confined to certain geographic limits, rarely extending over large parts of a continent; that done by the rat extends over the whole world."

Not alone from the side of food and property damage is the rat a menace to man but also from the hazards of disease transmission. The relation of the rat to public health was not suspected until twenty years ago when the Indian Plague Commission showed that plague was communicated by means of the rat infected with the disease and by the rat flea which left the body of the dead animal and by means of its bite brought about infection of human beings. It was clearly shown that in all plague epidemics there are existing or preceding epidemics of the disease among the rat population.

The Rat and Disease

The rôle of the rat in bringing about bubonic plague having been thus firmly established, it is evident that historically it is responsible for more human deaths than all the wars known to humanity. The great plagues of the Middle Ages are now recognized as being bubonic plague. The Black Death which swept across Europe during the fourteenth century was a rat-borne plague, and was responsible for the death of over 25,000,000 of persons. In India, the en-

*Reprinted by courtesy of the Monthly Bulletin of the Department of Health, Newark, N. J.

demic home of plague, many thousands of persons die annually from this disease.

Rats transmit other diseases besides plague, notably trichinosis and various tapeworms. More recently it has been established that the rodent is responsible for the transmission of epidemic jaundice or Weil's disease.

The infection was common among the troops during the World War and was a consequence of the enormous number of rats that existed in the trenches and dugouts and that carried the infection by contaminating food and food utensils.

Epidemic jaundice has been reported from several States of the Union especially the New England States and New Jersey. An inquiry sent out recently to the physicians of Newark revealed the existence of ninety cases of epidemic jaundice which had been under treatment in three months. It is probable that this number represents only a small portion of the cases actually existing. The relationship of the present prevalence of jaundice to the rat does not require a great deal of proof. It is fair to assume that a similar focus of infection is present in this country as in the case of the battle fields of Europe. In any case the rat is suspected and becomes a public health menace of even greater importance than formerly.

There is then every reason to call for a war against the rat, not alone by reason of the vast economic loss it causes but as the inciter of disease, pestilence and death.

Although it is virtually impossible to exterminate the rat, steps can be taken for its suppression which will have far reaching results. The main points of attack are the rat's habitation and its food supply. There is a vital need for the rat-proofing of warehouses and stores and the proper protection of food stuffs, so that the rat cannot gain admittance to such supplies.

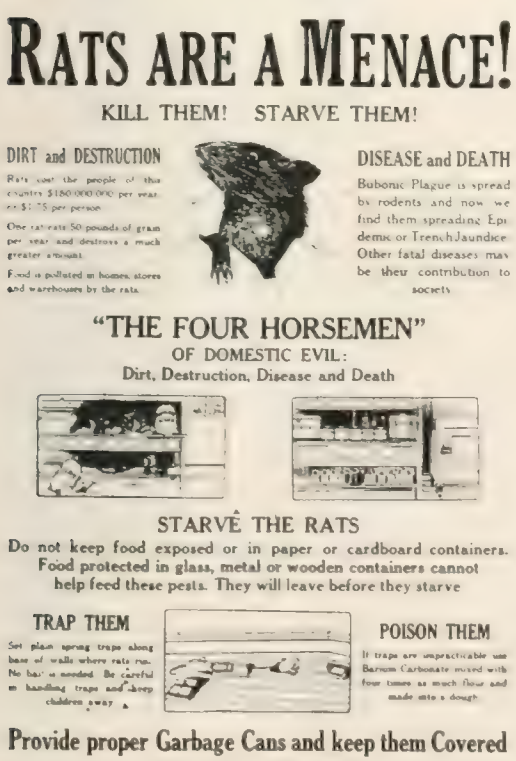
A building can be made rat-proof, and indeed a whole city may be rendered rat free, if a proper warfare against the pest is carried out. Rats will not thrive where there is not an abundant food supply. Once cut this off and there must be a migration to more suitable location. Rats may be destroyed by three methods, traps, poison and bacterial virus. Of these the first is probably the most efficient if properly carried out.

Properly to destroy the rat it is necessary to know their habits and outwit them. A rat will seldom run across an open space, preferring to run close to a wall. They are cunning and cautious and avoid anything that looks suspicious. They are, however, very curious and will readily enter lengths of pipe and explore dark corners.

The best form of trap is the ordinary spring or guillotine trap which can be bought for ten or fifteen cents. It is better to use the traps unbaited as rats are suspicious of baited traps but readily step on an unbaited one if properly placed. Set several traps along the sides of rooms or the footing of walls. They may be set in a semi-circle around a rat hole or one after another along a rat run. It is better to run six or seven than two or three. It is just as well not to attempt to close the rat holes because they will soon find other ways of entrance unless the building is properly rat-proofed. Diligent trap setting will quickly exterminate all rats in a building.

There are many rat poisons on the market with many and various claims made. Barium carbonate is one of the best of these, made up with flour in the proportion of one to four, and mixed into a thick paste. The objection to the poison method is the possible nuisance of the dead rat on the premises. The viruses have similar objections in spite of the fact that claims are made that the animal will come into the open to die. Whatever method of destruction is adopted it should be persisted in until success is assured. "Man," says Lantz, "has been fighting the rat for centuries and has made little progress. The rodents are entrenched in fortresses of man's own building. If they are driven out or overcome for a time others soon swarm from neighboring premises and the battle has to begin anew. The work has been made abortive by providing continued subsistence for the rodents and by failing to destroy their entrenchments."

There can be no question of the need of a united and constant campaign to eliminate the rat menace. Rat proof building should be the requirement for our dwellings. Rat-proof food supplies in our warehouses and stores. The open garbage bucket in the house and the improper care of offal in slaughter houses and meat stores are constant reserves of food supply for the rat. He will remain only as long as his food supply lasts. Like his fellow pest, the housefly, the existence of the rat depends upon the careless habits and indifference of the average individual. It is indeed time that the rat be no longer tolerated in well kept cities.


RATS ARE A MENACE!
KILL THEM! STARVE THEM!
DIRT and DESTRUCTION
Rats cost the people of this country $180,000,000 per year or $1.75 per person
One rat eats 50 pounds of grain per year and destroys a much greater amount.
Food is polluted in homes, stores and warehouses by the rats.
DISEASE and DEATH
Bubonic Plague is spread by rodents and now we find them spreading Epidemic or Trench Jaundice. Other fatal diseases may be their contribution to society
"THE FOUR HORSEMEN"
OF DOMESTIC EVIL:
Dirt, Destruction, Disease and Death
STARVE THE RATS
Do not keep food exposed or in paper or cardboard containers. Food protected in glass, metal or wooden containers cannot help feed these pests. They will leave before they starve
TRAP THEM
Set plain spring traps along base of walls where rats run. No bait is needed. Be careful in handling traps and keep children away.
POISON THEM
If traps are unpracticable use Barium Carbonate mixed with four times as much flour and made into a dough
Provide proper Garbage Cans and keep them Covered
AT ALL TIMES!
DEPARTMENT OF HEALTH
NEWARK, N. J.

The destructive activities of the rat are brought home to the people of Newark by placards of this nature which must arrest the attention and carry the sense of individual responsibility in the matter.

Knight Mental Deficiency Bill

The Knight Mental Deficiency Bill, introduced by the New York State Commission for Mental Defectives, and passed by the legislature, was vetoed by the Governor. The bill contained a provision permitting magistrates, on appeal of persons having a legitimate interest in the matter, to make temporary commitments for observation of persons appearing to be mentally defective. Under the present law, there is no practicable means by which a mental defective can be committed to an appropriate institution even for the purposes of a preliminary mental observation, except upon the consent and application of parents or of the mentally deficient person himself. The present New York insanity laws have a provision similar to the one proposed in the Knight bill.

Child Health Centers in Czecho-Slovakia

American Red Cross Workers Carry Public Health Message to Bohemia

By FERDINAND O. REINHARD, A.B., M.D., Medical Field Inspector, American Red Cross, Prague, Czecho-Slovakia

IN ORDER to give some idea as to the difficulties encountered in the attempt to introduce preventive medicine into an old country where for generations life has been lived according to inherited ideas and established customs, it will be necessary to give a short description of the locality, of the underlying economic factors, and of the general trend of community thought.

One locality chosen for the introduction of a child health center was a small town 7,800 inhabitants, situated in an unfertile valley and surrounded on all sides by the wooded slopes of the Sumava range. The town of Susice has for generations been one of the poorest sections of Bohemia. The farm lands are on the whole unproductive and the large tracts of forests are to this day controlled by a few members of the old aristocracy. As a result the inhabitants depend for their livelihood on the presence of two match factories, one paper mill, and one leather factory.

The salaries paid by these industries before the war ranged from 30 hellers per day for women to 60 hellers for men, while at the present writing 50 to 120 crowns a week covers the earning capacity of the average worker. When we consider that bread which formerly cost 30 hellers a loaf now costs 4 crowns, we realize that relatively there has been no great change in the economic life of the workers. It is of interest to note that at the present time one dollar is worth 54 crowns, and that upon such incomes families of six and eight manage to exist.

Something must be said concerning the racial factors which enter into all work done in the new republic. In this particular section of Bohemia we have a fair example of the intense nationalism so common in Central Europe. The town of Susice is inhabited by a predominant Czech population. Perhaps 90 per cent of the people are Czechs. As a result one rarely hears German spoken on the streets, although it is quite universally understood. However, within one-half hour's ride by automobile we come to villages where the Czech language is not understood and German signs adorn the streets.

A third factor which enters into all public health work, and which cannot be evaded, is the attitude of the insurance doctors. They are an all-important organization in the Republic of Czecho-Slovakia, chary of their rights, and rather inclined to view with distrust any endeavor which might possibly have a bearing on their source of revenue. Practically all workers are insured by their employers against injury and disease. This insurance in most cases includes the families of the employees. An interesting form of local insurance exists in one of the match factories where pregnant women are allowed seventy crowns a week and are released from work for six weeks preceding and six weeks after childbirth.

Housing and Illegitimacy

At the present time we have two further disharmonies to contend with, namely, the appalling shortage of houses, with the consequent overcrowding and unhygienic living conditions, and the presence of great numbers of illegitimate children. It is hardly within the power of social medicine to deal effectively with either of these problems, and yet they underlie much of the misery and disease present in the Central Europe of today.

It was in this community, bristling with difficulties, that Dr. H. O. Eversole, Director of the American Red Cross child health work in Czecho-Slovakia, determined to introduce a health station. It was decided that after a foothold had been firmly established in Susice, the work should be expanded by the addition of rural clinics. These were to be visited one day a week by the personnel of the main center and, if possible, the same routine of examination was to be carried out.

The actual work of establishing a Red Cross health station was invariably done by a graduate nurse and a social service worker. The duties of the nurse were considered to be the supervision of the medical management of the station, the teaching of public health classes, the training of Czech helpers, and home visiting in urgent cases. Besides, it was considered to be her duty to support the

As a part of the routine examination, elaborate social and medical histories are taken of each child. Social workers are shown in the health center at Susice obtaining this valuable data.

Each child brought to the health center is weighed and measured. Aside from helping the individual child, statistics are being compiled for long range study.

local physician in whatever way possible.

The work of the social service worker consisted largely of the management of the dispensary from the technical side—the keeping of accounts, the formation of local committees, and the making of contacts which might be of use in furthering our work. Aside from these duties, volunteers were to be trained by the nurse and social worker both along theoretical lines and by actual home visiting.

Personnel of Health Station

It was early decided that the Red Cross stations should be as far as possible consultation centers where advice to the parents would be emphasized while actual medical treatment was to be reduced to a minimum. Relief in the way of food and clothing was to be given only in cases of actual distress, and after a thorough investigation by the social service department had been made. Indeed, relief was to be looked upon as a form of medicine. Furthermore, health propaganda, whenever and in whatever way possible, was never to be lost sight of.

The personnel of a typical station consisted of the following: one local physician, the American nurse, and American social worker, a Czech nurse who would ultimately take over the work, two interpreters, two health visitors, one chauffeur, and besides these, any volunteer workers whom it might be possible to procure.

The preliminary steps toward the founding of the Susice health station were taken in August, 1921 when a meeting with the Mayor and the local physicians was arranged in order to determine whether Red Cross work in the community would be either desirable or, under the circumstances, feasible. As the result of this conference, three large airy rooms on the ground floor of the poor-house were placed at the disposal of the American Red Cross. Heat, electric light, and running water were to be furnished by the town. In return the Red Cross offered to furnish the necessary supplies and to finance the salaries of the personnel. The next problem which presented itself was to find the best local physician available and, after due consideration, the local school physician was determined upon.

Actual work was begun on September 27th, when the doors were thrown open for the examination and standardization of the children of the district.

The description of a routine examination shows with what care the ultimate aims to be achieved were kept in view, namely, the desire to acquire valuable statistics, while at the same time helping the child by adequate advice, and in isolated cases by the giving of actual relief. In the first place, an elaborate social and medical history was taken of each child. Next, the patient was stripped, weighed and measured. Both the sitting and standing heights were recorded. From this data the pelidisi were calculated according to the formula of von Pirquet. Other measurements, such as the circumference of the head and chest expansion were taken for possible statistical use. The child was now considered to be ready for the physical examination. This was done in a thorough routine manner in all cases, and any defects found were entered on the chart. At the end of the examination the parents were advised as to the general health of the child and the necessary steps to be taken for the removal of the defects. Whenever possible children requiring medical care were referred to their respective insurance doctors for treatment. Cases which did not come under this heading were treated at the dispensary and referred to the public health nurse for follow-up work. Where home distress seemed to be the outstanding factor, the social service department was called in for consultation and further investigation.

With the actual functioning of our clinic, local problems naturally arose. In the first place, the insurance doctors became frightened and stated in so many words that if any treatment were given they would oppose any work we might care to undertake. Next there developed a general apathy among the townspeople when they began to realize that relief supplies were given only in isolated instances. It was only with the greatest difficulty that these people were made to see that the ultimate good to be derived from the elimination of removable defects would in the long run be of far greater benefit to the future generation than the temporary well-being produced by the promiscuous distribution of a few supplies.

In spite of these difficulties, the station at Susice has examined 1,296 children to date.

Expansion Shows Popularity

Although after three months' work along public health lines one can hardly look for results, nevertheless certain encouraging events have taken place. Scabies and pustulitis, which were exceedingly common on our arrival, are now hardly ever seen at the clinic. This is undoubtedly to be attributed to the home visits, health talks, and actual treatment. Up to the time of writing six villages in the district have made formal requests for health stations. And last but not least, the Ministry of Public Health has been asked to furnish a health officer for the district.

At the beginning of December it was decided that the local clinic was functioning sufficiently well to permit

further expansion. Consequently two mountain villages within automobile distance from the central station, were chosen for weekly clinics. Not only were we welcomed with open arms, but every effort was made to help us make our rural work a success. Except for the fact that the villages of Strasen and Kasperske Hory are both predominantly German, and that more actual treatment is necessary owing to the lack of doctors, the problems do not essentially differ from those found at the main clinic.

An impressive feature of the work in the community under discussion is the fact that on the whole the inhabitants are intelligent and desirous of bettering their condition. Although great numbers of filth diseases were present, it was quite apparent, after some observation, that they were the result of impossible conditions produced by the war and not the outgrowth of personal indifference.

Toothbrush drills at one time became so popular that, after eighty had been gone through with and it was announced that the allowance for the day had been used up, a riot almost ensued. Health classes have been very popular and in some cases courses had to be repeated. At the present time classes in hygiene are being given to health visitors and little mothers. Two classes a week in pre-natal care, with twenty-four and twenty-six members respectively, are being given. Besides these courses, health talks are given once a week to more than one hundred adults at the country clinics, and every opportunity is made use of to impress the mothers and guardians with the importance of hygienic living.

The impossibility of changing over night the inherited ideas of generations will be understood by anyone interested in public health work. We cannot hope to eradicate the fear of deadly night air, or the antipathy towards certain kinds of food in a few months. However, in Czecho-Slovakia new ideas are likely to fall on fertile soil and it is only a question of time until lasting improvement will become apparent.

Same Problems as Elsewhere

It will be seen from this rather sketchy resumé that the work which the American Red Cross is establishing in one community of this new Republic is accomplished only with great difficulty, and that the problems encountered are largely the same as those met with in the United States. The same question of underpayment of public health officials exists. Indeed, the lack of appreciation of this phase of medicine seems to be ubiquitous among the laity throughout the world. As a result, it is impossible to pay physicians adequate salaries, thus making part-time positions a necessity. There is in all countries great danger of political control, with consequent degeneration of positions held by public health officers into "political plums," a condition to be avoided.

Too much credit cannot be given to the Director of the American Red Cross in Czecho-Slovakia, and to the nurses and social workers of the organization, for their unselfishness and devotion to public service, which made this great work possible.

To appreciate fully the difficulties of the field staff, one must have lived in the distant villages where poor living quarters are the rule, and where unaccustomed food and isolation are ever present factors. Added to these difficulties, we have the problem of transportation. Rural clinics at best are from two to three hours from base centers, and during the winter months the roads are often well-nigh impassable.

After visiting the stations established in upper Bohemia, the writer feels convinced that the opening wedge of public health endeavor has been successfully driven into a virgin soil, teeming with conservatism and ridden by age-old customs and misconceptions. However, only a comparatively short time should be required to build up a modern structure of social medicine upon the foundations which have been firmly laid by the American people through the agency of the American Red Cross.

From apathy and even opposition the Red Cross has won over the people to enthusiasm and support of the various health centers.

Tonsils and Teeth Bother First Graders in Detroit

The physical inspection of 19,533 children of the first grade in the Detroit Schools reveals that 15,755 (81 per cent) have one or more physical defects. Enlarged or infected tonsils are present in 58 per cent of the group. Severe dental defects afflict 24 per cent; 10 9/10 per cent are mouth breathers; 6 1/10 per cent have defects of vision; 4 8/10 per cent are anemic in appearance.

There are 3,778 children, about one-fifth of the total, who have no outstanding defects.

Forty-nine and two-tenths per cent are susceptible to smallpox, having never been successfully vaccinated.

The numbers and percentages of children with each defect are as follows:

Defect	Number of Children	Per Cent. of Total Children
Defective tonsils	11,315	58.0
Defective teeth	4,684	24.0
Mouth breathing	2,127	10.9
Defective vision	1,190	6.1
Anemic	936	4.8
Lung examination recommended	601	3.1
Heart examination recommended	533	2.7
Defective hearing	361	1.9
Skin eruptions	331	1.7
Enlarged thyroid	269	1.4
Enlarged cervical glands	162	.8
Orthopedic defects	152	.8
Deformed palate	6	.03

Status of Oleomargarine in Nutrition*

Laboratory Precision Now Can Safely Assure Constancy of Vitamin Content

By CASIMIR FUNK, Associate in Biological Chemistry, College of Physicians and Surgeons, Columbia University, New York City.

DURING the eleven years in which I have been engaged in research, mostly in the field of vitamines, this is the first occasion that I have addressed a gathering of business men of one of the great food industries on some of the problems of development and production. This occasion augurs well for closer cooperation between the practical business man representing industry, and the food industry, essentially chemical, in part, and the laboratory man, who can help the former and from whom he can learn a great deal himself.

The margarin industry has been of late distinctly in the vitamine "phase." Being myself a good deal responsible for the development of this branch of nutrition, I am anxious to see what can be done to overcome the difficulties which have recently arisen, and to consider to what degree the criticisms directly against the use of margarin and allied products are justified.

The product of the margarin industry, I understand, is confronted with competition, that of butter. The butter maker claims that his product is superior to margarin on account of the nature of the primary product being less refined and containing certain elements of nutrition to be referred to later. The development of our knowledge of vitamines has had one undesirable effect. It has enabled a certain school of nutrition to emphasize the value of natural foods which has found, of course, willing followers among food producers who are more than willing to exploit these ideas to their best advantage. The producers of natural foods avail themselves of class legislation which would permanently cripple and even annihilate the industry of artificially compounded foodstuffs.

The idea that we cannot improve food as provided for us by Nature is entirely wrong and reminds one of the idea, rampant in the first part of the nineteenth century, that the laboratory would never be able to duplicate organic products as elaborated by Nature in the plant and animal cells. The word "never" does not exist in science. As early as 1827 Wöhler synthesized urea, the first natural product made artificially in the laboratory. Since then, hundreds of such products have sprung from this fecund source and have proved identical in every respect with the products elaborated by the cell.

Increasing knowledge of our nutritional wants has demanded the collection of specific data on food products of all kinds, with the result that no food, either natural or compounded, in the absence of laboratory tests can safely be assumed to meet physiological requirements.

The exploitation of the vitamine doctrine may at least be credited with placing upon food manufacturers and distributors the onus of proving the existence of constituents claimed. It has thus become possible so to manufacture margarin as to certify antirachitic and anti-ophthalmic properties as well as to insure a constant vitamine content.

Margarin as a Fat-Component

The same situation applies to our fats. With increasing knowledge of our nutritive wants, and data being collected with marvelous speed, there is no reason why we cannot compound food mixtures superior in nutritive value to the products provided for us by Nature. You see a very similar situation in the skimmed milk industry. Its products were fought by the milk-producers on very much the same ground as the butter producers fought margarin, namely, the deficiency of vitamine A. After much effort was spent by the adversaries of the skimmed milk compounds, a product appeared on the market which contained a certain proportion of cod liver oil. This product has been tested successfully on a number of infants and can be made richer in vitamine A than original milk. Inasmuch as legislation could not debar such a product on the ground of deficiency in vitamine A, the adversaries of skimmed milk products will be compelled to find other reasons for its prohibition. If I am not wrong, all the skimmed milk compounds will be modified in the future in some similar way. This, it seems to me, indicates clearly a future tendency of the margarin industry. Unfortunately in the margarin field direct-feeding experiments are scant, and those bearing upon the vitamine content practically absent. This is why I shall have to limit myself to somewhat indirect conclusions, based on analogous experimental work.

Whatever may be the source of margarin, its utilization in the body, that is its caloric value is equal to that of butter in the physiology of nutrition. We have been unable to detect any difference between the various fats in this respect with margarin. Whether the raw materials of margarin are of plant or animal origin, we are not dealing with fats foreign to the body, as the same fats are a part of our regular diet. Their fate in the body is the same. They are partly split by the pancreatic ferment, steapsin, into their components, glycerol, and fatty acids are resorbed by the intestinal wall in the form of soaps, which form largely the triglycerides which can be used or stored up by the body.

The chemical nature of the various fatty acids derived from margarins or butter gives us no reason to believe in any real difference as to their utilization by the body. As a matter of fact, all the edible fats, including margarin, have the same coefficiency of digestibility, from 97 to 98 per cent, and yield on combustion the same amount of calories. One of the latest textbooks on dietetics (v. Noorden and Salomon) says that margarin when prepared in the proper way and from sound ingredients can be used in place of butter. We see from the few words above that nobody can claim any nutritional difference between margarin and butter,

*Read before the third annual convention of the Institute of Margarin Manufacturers, Detroit, Mich., May 22-28, 1922.

from the point of view of its fat nature alone. All criticisms directed against margarin as a food originated from the results of vitamine research. It is this aspect of the problem that I here wish to emphasize. The new developments of vitamine research are too well known to be dwelt upon here. I shall restrict myself to the vitamine associated with fats, vitamine A, and which has a direct connection with the production and distribution problem of the margarin manufacturers.

Knowledge of vitamine A has many new and recent developments. Shortly after I had assumed theoretically the existence of a specific antirachitic vitamine in cod liver oil, McCollum, with his collaborators, and simultaneously Osborne and Mendel demonstrated the existence of a vitamine associated with fats which plays an important rôle in the nutrition of certain animals and presumably also of man. I say here expressly "certain animals," as recently I have been able to keep adult pigeons for 140 days on a diet free from this vitamine. First it was assumed that vitamine A was associated only with animal fats, particularly butter, egg yolk, and cod liver oil, but lately its presence has been demonstrated in a number of plant products, especially green vegetables and also some seeds and roots. Vitamine A has been found to be much more widely distributed than was at first surmised. So much so, that in our experimental work we must take great care to free the diets from this admixture. This is done usually by a combination of extraction with fat solvents and submission to the action of air (oxidation) at high temperature.

Even with these precautions the reports from the various laboratories are far from consistent. Some experimenters (Drummond and collaborators) report that on carefully purified diets young rats stopped growing after ten days, whereas Miss Patton and myself are unable to arrest growth completely even after two months and longer. It seems not impossible that besides the variations in the laboratory conditions, various breeds of rats show differences in their vitamine A requirements. As regards the absolute requirements of a rat for vitamine A, we are not informed. It is assumed, however, that 5 per cent of butter in a diet is sufficient, and as a rat of 50 to 60 gram's weight consumes about 5 to 6 grams of a standard synthetic diet, this means an equivalent of 0.25 to 0.30 grams of butter a day.

Similarly, according to Zilva and Miura, the requirements of a rat in terms of cod liver oil vary between 0.0017 to 0.005 grams per day. This means that cod liver oil on an average is one hundred times as potent as butter. For a two-year old child (11 kilograms) this would mean 46 grams a day in terms of butter and 0.36 grams in terms of cod liver oil. Judging from the amount of butter or cream in its diet, a child of two years gets not far from this amount. With rats, the vitamine requirements as regards vitamine A have been found to be materially smaller when the rats approach maturity. From analogy we must surmise that the same facts apply to adult man.

We are entirely in the dark as to what rôle vitamine A plays in the animal economy. We know that in its absence certain young animals at least cease to grow, but a lack of any essential constituent of food causes a similar result. We know that resistance to infections, particularly of the respiratory organs, is diminished but this might not be specific for vitamine A. We know only of one apparently specific connection and that is the occurrence of ophthalmia (xerophthalmia) following vitamine A deficiency; this is an eye infection which I will describe a little more in detail.

Ophthalmia Due to Diet

This condition has been described in a number of laboratory animals and also in children, when placed on a diet deficient in vitamine A. First regarded as a deficiency disease, in the same sense as beriberi and scurvy, it doubtless ultimately will prove to be an unspecific infection of the eyelids and cornea, a sequence of deficiency in vitamine A. What the real connection is between these two phenomena is still unknown; it seems to us that the etiology of ophthalmia requires a good deal of further study, as was emphasized by Walker[1] not long ago. Indeed, no pathological changes have so far been detected to justify this sudden invasion of bacteria.

As regards the time necessary for the development of ophthalmia, the available data vary a good deal, most of the investigators reporting the necessary time to be six to eleven weeks for rats and for dogs almost one hundred days. This means that a long continued deficient dietary must be instituted before symptoms manifest themselves. As regards the percentage of the animals so affected, there also is a considerable discrepancy in the available data. While Osborne and Mendel, who have the largest amount of statistical material on rats at their disposal, report fifty per cent of the animals affected by ophthalmia, Emmett reported almost one hundred per cent. It seems to me that cleanliness has something to do with the incidence; when a number of rats are kept together in one cage the incidence seems to be greater than when they are kept separately and cleaner. It is often disappointing when one desires to produce ophthalmia for the purpose of testing fractions obtained from cod liver oil, to see the small percentage of animals which finally develop it and also the length of time necessary for this purpose. To summarize our personal experience on the subject, we find that the only definite manifestation of a deficiency in vitamine A, ophthalmia, needs further studies under uniform conditions as regards sanitation, age and breed of animals, and the method of food preparation.

Through the progress made in the last few years in the study of rickets, the problem of vitamine A presents a somewhat changed aspect, especially in connection with the subject of margarin. In accord with my conception that vitamine A has antirachitic properties, and with Mellanby's experimental work on young dogs, milk should be regarded as a food which is able to protect a young animal or a baby from rickets.

However valuable this would be from the standpoint of milk and butter being "the perfect food," modern investigations on rickets have demonstrated clearly that, strange as it seems, milk and butter both are unable to protect a young animal from rickets, while cod liver oil possesses these properties to a very marked degree. At the same time, as we already have seen, cod liver oil contains much more of the substance which is curative for ophthalmia than does butter. Should this phenomena be interpreted to mean that for curing ophthalmia and for resumption of good nutrition and growth, small quantities of vitamine A suffice, while for prevention of rickets large quantities of the same substance are necessary? Or should it be explained by the existence of a separate antiophthalmic and antirachitic vitamines, as McCollum and his collaborators recently suggested? These questions will be clearly answered only when the two fractions from cod liver oil are separated from

*v. Noorden and Salomon: Springer, Berlin, 1920.

1. Walker, S., Jr.: Jour. A. M. A., 1922, lxxviii, 273.

each other in a chemical way and tested for both actions. Whatever the final outcome of this issue will be, it is important to know that milk fails us in its antirachitic properties, and that we had to hunt for protection by using cod liver oil and other factors, which, however, is not within the scope of our present consideration.

Chemistry of Vitamine A

While the elucidation of the chemical nature of this vitamine, particularly its antirachitic variety, has seemed hitherto very remote, the recent progress made in the methods of testing makes justifiable the hope that the antirachitic vitamine will not remain to us a complete mystery very much longer. It seems to me that the leading food industries can not afford very much longer to relegate vitamine A to a class of mysteries, always to remain as such in the future.

First, in the method described by McCollum, Simmonds, Shipley and Park[2], we possess means to test for the presence of the antirachitic vitamine. The test is made on rats on a diet containing a low proportion of phosphorus and vitamine A and a high proportion of calcium. After thirty to thirty-five days the fraction to be tested is given to the rats daily for five days. After this time the animals are killed and their bones examined for fresh deposition of calcium salts. The test in our hands proved to be entirely reliable. Having this test at our disposal, material advances have been made in the chemistry of the antirachitic vitamine.

The chemistry of antirachitic vitamine was started by the author in 1912 when no physiological methods were available for testing for the presence of this substance. In 1914 McCollum and Davis[3] saponified butter and extracted the vitamine A with olive oil. This hopeful method was not exploited by the above investigators. While Drummond[4] failed to achieve success by using the saponification method, Steenbock and his collaborators[5] made a very important advance in the same direction. Cod liver oil was found quite stable to saponification with 20 per cent alcoholic potash solution, boiling the mixture for four hours; and what is still more interesting for us, the active substance could be extracted from the soap solution with ether and concentrated in this way.

A more recent paper by Zucker, Pappenheimer and Barnett[6] signifies a further very desirable step in the same direction. Here the fatty acids and cholesterol were separated from the saponified oil and found inactive, while the mother liquor was more active than before. In this way the final fraction could be made as concentrated as desired.

By an entirely different procedure, which will be described in detail in collaboration with Dubin in the near future, we have obtained the antirachitic vitamine a hundred times more concentrated as compared with the original starting material. Besides the scientific interest and the well founded hope to get at the chemical nature of this vitamine in the near future, the practical application of this very substantial advance is obvious to all of you. It remains to be investigated how long these concentrated preparations will remain active but if they do, the problem of making food products deficient in vitamine A richer in this substance, is practically solved.

It is regrettable that we possess hardly any scientific data on this, at least theoretically, if not practically, important subject. Besides the fact, shown by Osborne and Mendel[7] that the oleo portion of the beef fat contains all the vitamine A, while the solid portion is deficient in it, and the investigation of Halliburton and Drummond[8] who made a more thorough investigation, not many data are available. Unfortunately these latter workers, while stating the source of the products, did not mention at all the way they were manufactured. Their results were as follows: Margarins of animal origin were found to contain vitamine A. Margarin of plant origin did not permit normal growth but prevented ophthalmia. Nut butters and lard substitutes made from hydrogenated vegetable oils also were found to be deficient.

It must be borne in mind that these results are based upon English margarin which under the existing law may contain as high as 10 per cent of butter, and might, therefore, give better results due to the presence of this admixture.

It is self-evident that in each margarin factory the vitamine A content of the finished product will vary and has to be determined specially in each case. The vitamine content of the finished product will depend on the vitamine content of the raw materials, the amount of milk constituents in it and the method of manufacture. For instance, it has been shown repeatedly that the aëration of the food, especially in conjunction with heating, is detrimental to vitamine A. This has been shown for lard by Drummond, Golding, Zilva and Coward[9], that the method of rendering the lard is of significance for the vitamine A content of the finished product. This also is in accordance with the statement of Daniels and Loughlin[10] who have found that some samples of lard contained a noticeable amount of this vitamine. Heating and simultaneous oxidation is the method used in the laboratories for rendering the ingredients of the basal diet free from vitamine A.

Dietetic Aspects of Margarin

All that I have said here can be applied in the practical procedure of margarin manufacture. It is quite probable that most of the natural foods contain some vitamine A which could be preserved by taking proper precautions. While hydrogenated fats are regarded at present as vitamine-free, the present method of hydrogenation involves high temperatures, and it should be worth while to investigate whether or not a cheap method of hydrogenating oils could be devised which proceeds at low temperature and which would be not so destructive to the vitamine. In margarin manufacture a mixture could be selected to include a food ingredient with a naturally higher vitamine content of the type of oleo. Finally, by eliminating the destructive factors, the original vitamine content could be more efficiently preserved.

In considering the nutritive value of margarin, we naturally have to compare it with butter. Since the discovery that fresh milk, cream, and even butter display only an insignificant antirachitic potency, the dietetic position of margarin has been strengthened materially, since in this respect no noticeable difference has been established. On the other hand, the necessity of laws in all countries regulating the total solids and fat content of milk, shows conclusively that not all milk producers are concerned particularly with the health of our babies. In this respect we are

2. McCollum, et al.: J. Biol. Chem., 1922, li, 41.
3. McCollum and Davis: J. Biol. Chem., 1914, xix, 245.
4. Drummond: Bio. Chem. Jour., 1919, xiii, 81.
5. Steenbock, et al.: J. Biol. Chem., 1921, xlvi, 89.
6. Pappenheimer and Barnett: Proc. Soc. Exp. Biol. Med., 1922, xix, 167.
7. Osborne and Mendel: J. Biol. Chem., 1915, xx, 379.
8. Halliburton and Drummond: J. Physiol., 1917, li, 235.
9. Drummond, et al.: Biochem. Jour., 1920, xiv, 742.
10. Daniels and Loughlin: J. Biol. Chem., 1920, xlii.
11. Kennedy and Dubin: J. Biol. Chem., 1922.

protected fully, but a new problem has come up which requires in our opinion new legislation. This is the logical postulate first suggested by us and now experimentally fully confirmed. We are speaking here of the dependence of the vitamine content of milk on the vitamine content of the feed of the cow. At the present time probably most of the winter milks are decidedly lower in vitamine value as compared with summer milks; we can conceive, theoretically at least, the possibility of milk and butter being almost entirely vitamine free. As Kennedy and Dutcher[11] have lately demonstrated, the winter milks by a suitable choice of feed could be rendered as nutritious as summer milks and on such selection we should insist. The vitamine content of the marketed milk should be tested by the authorities and rapid methods for such tests should be devised.

The margarins are not a substitute for milk but a substitute for butter and as such have fulfilled well the requirements, except for deficiency in vitamine A, which as yet is not accurately determined. This vitamine, according to our present knowledge obtained from experiments on rats, is required more by the young, growing animal, than later in life. Judging from the occurrence of ophthalmia in children, when their diet is limited to highly skimmed milk as a source of vitamine, the human requirements for vitamine A seem to be analogous to those found for rats.

The paucity of ophthalmia cases in central Europe during the war shows us that even in times of serious deficiency of fats the human organism, especially adults on mixed diet, can quite easily limit this deficiency. In children still on a one-sided diet, replacing butter by margarin of the present type may not always be desirable unless the diet is supplemented by a product rich in vitamine A, like fresh green vegetables, eggs, or cod liver oil. With adults, on the contrary, for whom the requirement of vitamine content are smaller, the use of margarin has no dangers of deficiency. Any of the existing textbooks on vitamines give a long list of foodstuffs which enter into everybody's dietary and which more than offset the partial deficiency of margarin. For cooking purposes, while no actual experiments are available on this point, it seems to us that margarin safely could replace butter. In frying and cooking it is likely that the vitamine A of butter is for the most part destroyed by oxidation and may possess no advantage over margarin.

The margarins, as we already have seen, are fully equal in nutritive value as regard their content in fats and the number of calories they yield, to butter and nut butters. From the standpoint of our present knowledge of nutrition, you can safely proceed as you have done successfully in the past, but if you wish you could disarm entirely your opponents. Margarin differs dietetically from butter only in its diminished content of vitamine A. This seems to us the only scientific ground on which legislation adverse to the development of margarin manufacture could be attempted. In spite of the fact that such legislation for reasons already explained, does not find justification in our eyes, this problem seems sufficiently important to the trade association of margarin manufacturers to invite a vitamine expert to address its convention. If I am right in this assumption, nothing seems easier to me than to restore or supplement the deficient vitamine. As I have stated above, a better selection of raw materials and avoiding injury of the sensitive vitamine A will remove partially this difficulty. How far this is possible with your present processes of manufacture, I cannot state. To go a step further, you can make your margarin as rich or richer in vitamine A than butter is. I have here in mind the addition of a small amount of cod liver oil. The product thus improved would have a distinct advantage over butter in that it would be antirachitic as well as antiophthalmic; and, in variance with butter, it would have a constant vitamine content.

A certain amount of experimentation on this subject appears to be necessary, but judging from the requirements of rats for butter as compared with cod liver oil, 0.36 gram of the latter is equivalent in value to 46 grams of butter. This means that to a pound of margarin three to four grams of cod liver oil would have to be added or .04 grams of the concentrated vitamine fraction which has been obtained from the oil. This latter addition would constitute only one hundredth of 1 per cent of finished margarin. It is tasteless and odorless.

Millions of pounds of margarin sold yearly to the public perhaps may not show the manufacturers the desirability of any further improvements in manufacturing processes, but to my mind, the exploitation of the vitamine doctrine by competitors renders a new step in the development of the margarin industry very timely and most wise.

Defective Drains and the Spread of Infections

The advance in sanitation should claim the major credit for the decrease in incidence and in virulence of scarlet fever in recent years, according to Dr. J. Allan Gray, of Edinburgh, in a recent communication to *The Lancet*. Those with first hand experience of scarlatina in hospital and private practice have for many years been agreed that the possibility of transmission through desquamation is an almost negligible quantity, but that the risk from contamination by the discharges from mouth, nose, and ears is real. Prevent these discharges from reaching the uninfected, and no spread occurs. This may be quite easily and safely done in private, given a trustworthy attendant and suitable housing.

As an illustration of what may be done under duress of circumstances, Dr. Gray relates that in old days, when hospital accommodation was limited, he again and again treated without spread, a case of scarlatina in a two room house in a tenement, the patient occupying one room with the attendant (separate beds,) the father and the rest of the family occupying the other room, the attendant cooking, etc., for all. All infected spoons, cups, etc., were placed in boiling water immediately after use, rags used as handkerchiefs burned, and the admonition repeated at each visit that, as scarlet fever enters the uninfected largely through the mouth, it was incumbent upon the attendant to prevent this from happening to other members of the household.

The fact that cases of scarlatina are not as severe as in the old days and the mortality less, Dr. Gray attributes to the advance in sanitation since in the past the worst cases, whether in slum of suburb, were associated with defective drains. While it may well be that the virus of the disease has become attenuated in its passage through a population whose successive generations have been subjected to the infection, it is all to the good that the said population possesses the advantage of concurrent improved sanitation.

Dr. H. Cilento of the Australian Department of Health has come to America to study the methods used by the late General Gorgas in making Panama hygienic and sanitary. After two months he will go to New Guinea to take charge of the medical and hygienic administration of the island now under Australian control.

The Social Hygiene Campaign in Florida

Lectures, Films, and Clinics Are Weapons in Fight for Eradication

By WILLIAM BIERMAN, A.B., M.D., New York City

THAT venereal diseases are preventable in theory is agreed to by all. Their etiology is well known and their method of transmission is definitely established. That these diseases are preventable in actuality is still doubted by many. These are willing to concede as a true fact that the number of cases in the army would have been much higher were it not for the institution of measures which composed the so-called American Plan. They doubt, however, as to whether this same plan of action will be effective among a peace-time population. Obviously, there are only two lines of conduct which can be followed in a consideration of this sort. Either to do nothing, or else to do something.

The great prevalence of these diseases and the enormous amount of human damage and death for which they are responsible precludes the possibility of our ignoring them. They must be considered because they form the scourge which is making the strongest threat against our existence. That this not a purely theoretical consideration is borne out by the impressions one gains in going through many sections of the South. In these places it appears as if the colored population is even now beginning to be threatened with extinction—due, mainly, to the common prevalence of sterility, for which the gonococcus is the chief responsible factor, and the mortality occasioned by the inroads of the spirochaeta pallida.

Whole State Canvassed

During the draft examinations Florida had the unenviable distinction of leading the other states of the Union with regard to the incidence of venereal diseases among her citizens with a percentage of 15.63. The State Board of Health, therefore, determined to place the State in the van of those who are exerting every effort to diminish the incidence of these diseases and eventually eradicate them. With the cooperation of the U. S. Public Health Service, the American Social Hygiene Association, and the Interdepartmental Social Hygiene Board, an anti-venereal disease campaign was launched.

For the purposes of this campaign, the state of Florida was divided into two sections,—the northern section, which is also the more western section, extending from Jacksonville to Pensacola, the remainder of the State forming the other portion. The western section of the State was covered by means of the automobile truck loaned to the state by the American Social Hygiene Association for a period of three months. This truck program had previously been carried out in North Carolina where it had demonstrated its great value.

This automobile carried all of the equipment necessary to show motion pictures at any places, any time of the day. It contained a Delco electric light generator; and storage batteries; a portable Powers projecting machine; screen; curtains for darkening buildings; and cables. Through its use we were able to convert schools, churches, and other public buildings into places where the motion pictures stood out clearly, even during daylight. Some sixty communities lying between Jacksonville and Pensacola were visited during these three months. Showings were made before audiences of women in the afternoon at 3:30 and for the men at night at 7:30.

For the women the so-called women's lecture film was used. The men were shown the men's lecture film. The exhibition of both films was accompanied by a lecture, the general purpose of which was to explain the pictures thrown on the screen, in accord with the varying intelligences of the audiences as judged by the lecturer; to emphasize the seriousness of these diseases; and to indicate ways in which they might be prevented. The remarks made before, during, and after the exhibition of the pictures emphasized, too, the necessity of treatment at the hands of a physician and the inefficacy of self-medication; the fact that the diseases are usually acquired through illicit sexual intercourse—although they might be acquired innocently, as for example through kissing; the necessity for telling the growing child the real story of how life begins that the cast of his character might be molded along sexually moral lines at the time when those impressions could be most firmly fixed into his moral fibre.

The advent of the truck was prepared for in every place by the activities of the advance agent. He would arrange for the building where the pictures were to be shown; place placards indicating the date and place where the exhibition would be held, in the most prominent places in town; and cause letters to be distributed to all the holders of boxes in the post-office, giving the same information. As a result of these activities, a very large proportion of the inhabitants invited, those over 14 years of age, would appear to witness the exhibitions. These were well received. Many were the words of gratefulness expressed after the showings for the information given concerning these vital questions.

The Southern portion of the state was covered by what was called the "towns and cities" campaign. Some thirty of the larger communities were chosen for the activities of this campaign. In these places the leading citizens, those most influential and most appreciative of the need for combating venereal diseases, were gathered together and were asked to appoint of their number some small group to act as a permanent committee to keep up the fight against venereal diseases. The leading women were similarly organized.

Local Committees Organized

We recognized that though a single exhibition of motion pictures and lectures was of great value, it was necessary to maintain continued effort along these lines for many years before our eventual objective, the eradication of gonorrhea and syphilis, could be reached. For this purpose committees were organized to act as local representatives of the agencies, Federal, State, and private, who are interested in this fight. It was felt that the townspeople who composed them would be more conversant with local conditions and, therefore, in a better position to apply the various phases of the "American Plan."—re-mak-

tional educational, medical and legal, —to their respective communities.

The State Board of Health has acquired motion pictures, a great mass of educational literature, and placards for exhibits, which it stands ready to furnish these committees in furthering their efforts. In addition, it was felt that these representative groups could also, if they so chose, draw upon the venereal division of the U. S. Public Health Service and the American Social Hygiene Association for advice, material and other aids they might desire in pushing the anti-venereal disease campaign in their towns.

The enthusiastic response made by the citizens of these towns in the inauguration of these committees augers well for the successful continuation of the work, the foundation for which was laid during this campaign. The legal phase of the campaign consisted in the presentation for passage by the state legislature of laws aimed against prostitution.

As the result of an invitation extended to me by means of a resolution passed in the Florida State House of Representatives, I and the other workers in this campaign had the opportunity of showing our motion pictures to the legislators and explaining the purposes of our undertaking.

The medical phase of the campaign aimed to improve the treatment accorded patients suffering from these diseases. In order to provide for the indigent, gonorrheic and syphilitic clinics have been established at most of the county seats throughout the state.

How to take care of these indigent patients at a minimum expense to the state was a problem. With the exception of the larger cities of Jacksonville, Tampa, and Pensacola, the so-called clinics have been established in the private offices of the doctors designated to take care of these cases. These doctors are furnished with the necessary medication—arsphenamine, mercury, and argyrol, with the armamentarium necessary for their proper application. To maintain these clinics the State Board of Health pays a small salary and the city and county are each asked to pay sums equal to the compensation given by the state. To reach the smaller towns an ambulatory clinic was established.

The results of all these activities cannot be judged until several years have elapsed. Those of us who have paid particular attention to this work feel that these measures are the most effective we have and that properly applied, as the result of continuous effort over a period of many years, we will finally reach that consummation we so earnestly hope for,—the eradication of venereal diseases.

The Hazards of Old Age

IF THE psychologists desire indubitable proof of the universal tendency of the human mind to "sidestep" reality and turn away from the rational consideration of what seems to it unpleasant, no better instance could be cited than the lack of attention, both individual and collective, which has been accorded to the problems of old age. Society assumes no collective responsibility for the aged and consigns to the scrap heap everyone alike whether the productive period has run its full course and entitles the aged worker to surcease of labor, whether sickness or other unpreventable conditions have unduly shortened the working period, or whether ruthless commercialism has caused industrial superannuation early in life. In fact, so meager, so painfully inadequate is public provision for aged dependents that Epstein[1] declares that "though the expectation of life has improved, it cannot be considered a blessing by the aged poor." The almshouse is the final apotheosis of friendlessness and Epstein considers that of the greater army of the aged who are presumably non-dependent merely because they are not the recipients of charity, a sufficient number are below the poverty line to call for a far reaching and constructive social policy. The obligation of caring for the aged becomes a more concrete question in smaller groups and has been faced directly by the severally inadequate means of (1) individual savings; (2) pensions—individual, industrial and government; (3) retirement funds; (4) trade union superannuation benefits; and (5) insurance, both voluntary and subsidized. Epstein makes a comprehensive analysis of old age compensation systems of Europe and traces the development of the insurance idea in the United States. He stands committed to some form of social insurance for the relief of the aged.

1. Epstein, Abraham: Facing Old Age, Alfred Knopf, New York, 1922.

It is an interesting fact that even where pensions are provided only negligible numbers are reached. Of the industrial systems examined by a special committee of the Merchants Association, New York, the proportion of the total amounts spent in pensions to the total pay roll was rarely found to exceed 1 per cent. "Under the present condition of costs of living and wages, thrift and individual savings sufficient for old age cannot be seriously considered possible for many wage earners. Neither can the industrial systems be depended upon to take care of their aged workers, since they have no sure permanency and take care of only a fraction of the workers they employ. While the recent Federal Retirement plan will take care of many a needy employee, there still remain thousands of federal employees, as well as employees of state and municipalities who need to be protected. The fraternal and trade union old age benefit funds are generally insecure and at best the number that they can protect is inconsiderable." The individuals themselves are no more prone to anticipate the disabilities of age, for in Pennsylvania, in which state there are multifarious forms of industrial, municipal and fraternal pensions, only thirty out of every thousand persons sixty-five years of age and over are protected.

G. Stanley Hall[2] in his comprehensive book on "Senescence" speaks with the authority of a psychologist on the characteristic indifference of the multitude to the hazards of age. The early twenties can hardly be considered the most crucial period of life as the ages between forty-five and sixty-five witness by far the greatest wreckage of human material. Psychology offers no help to the aged man, for there are no mental tests of recognized validity above the teens to indicate whether a man is growing old normally or wisely, and psychoanalysts on the express authority of Freud refuse to take a patient over forty. Medicine is far from having developed any system of coherent gerontology, and, largely owing to the neglect of its problems, old age is now too commonly a hateful and even a ghastly thing. Hall, however, holds that the ideal of a greater old age is not an idle dream. There is no short cut to longevity; its achievement must be the work of a lifetime and many of the most serious drawbacks in later life are open to practical and simple

2. Hall, G. Stanley: Senescence, The Last Half of Life, D. Appleton & Co., New York, 1922.

remedy. It is not that the fear of death casts its shadow in later life. The aged suffer mainly from isolation, from a false old age imposed on the current belief that the age limit is "three score years and ten," and that usefulness terminates earlier than that. For we live in a society which has relegated to a false old age the relatively fit, and the aging population suffers from maladjustment, from isolation and enforced idleness, and the difficulties of finding new uses for powers scrapped before they found expression. Hall states that the time is ripe for the formation of a society of senescents, national in scope, to relieve the isolation of the aged and to extend their period of productivity.

Medicine, too, must study the needs of age. We are freer from germs but our vital organs wear out sooner because of unintelligent use and lack of conservative care. Old age is a risk to which all are liable. Self-respect and thrift require us to give more attention to it. After all, health care of the aged is an integral part of the program to prevent the premature death of everyone. It is an economic question only in part. It is more a medical issue. It is not a question of charity. If it is to solve the problem of the aged, charity needs to become a science.

California Plans to Train Dental Assistants

By DOROTHY LOUISE MACKAY, M.A., San Francisco, Cal.

If the leading dentists and educators of California are successful in carrying out their plans, several California high schools will soon include in their curricula courses preparing girls for the occupation of dental assistant. At a conference held in San Francisco in the Autumn of 1920, the representatives of the State Board of Education and of the State Dental Association considered the possibilities of such a course and approved it as valuable and practical. Through cooperation with the Division of Vocational Education of the University of California, the services of a research worker were made available. She was to study the situation and to gather information which would enable her to make recommendations for a course of study.

The Dean of the College of Dentistry of the University of California sent out a letter to fifty leading dentists of San Francisco and the Bay Region who he thought might be interested. The letter stated that the State Board of Education and the State Dental Association were cooperating in an effort to establish a course of training for dental assistants, and outlined the plan of procedure. The research worker was to request of these dentists an appointment, to visit their offices, watch their assistant at work, and consult with them as to the needs of the work and of the course of training. A list of topics for discussion was enclosed in order that the dentist might think about the matter before discussing it with the research worker when she called. Some of the points on which their opinion was asked were: the age for entering the work, desirable physical characteristics — height, weight, health, etc.—types of personality, education, general suggestions for a course of training.

A second series of questions aimed at an analysis of present conditions in the vocation,—hours of service, salary, experience necessary for efficiency, average length of service, and length of service with present employer. The letter included a request that those addressed assist the research worker in every possible way to obtain results.

Survey Dentists' Attitude

The visits to the offices of the various dentists were characterized by great differences as to length of stay, opportunity for observation and discussion, attitude of the dentist, and results obtained. The first visit consumed practically a whole day. The office was that of a dentist who was vitally interested in the project, and who had been one of the original committee to formulate the plan. He introduced her to the mysteries of a dental office and laboratory, pointing out the more important equipment, instruments, and laboratory material. He assisted her in planning her visits to obtain the most satisfactory results. She next visited one or more offices of the several types including those of:

A.—Dentists with a general practice.

B.—Dentists whose practice was limited to special fields: (1) Extraction (a) local anesthesia, (b) general anesthesia; (2) surgery; (3) orthodontia; (4) diseases of the gums; and (5) mouth reconstruction.

C.—Dentists whose practice includes one or more of the above fields, but who share a suite of offices with other specialists in different fields.

After this tour of visits she went to the other offices on her list for the purpose of checking her notes. In this manner she covered nearly all of those on her lists, the visits lasting from an hour or less to a half-day or two half days.

The great majority of the men visited were greatly interested and anxious to cooperate. They gave freely of their valuable time to explain, demonstrate, discuss, and suggest. In only a very few cases was there any opposition or disinclination to assist. One or two said they had no time for an interview and could not permit a visitor in their operating rooms. One man said that nobody except a dentist was qualified to study the occupation, and resented "outside intrusion."

Two advanced the wornout argument used at some time or other concerning every occupation that has ever been analyzed for educational purposes: "You cannot prepare people for this job in any school or training course. The work varies too greatly to be standardized for teaching. Give me an inexperienced girl and I will train her to suit my individual needs. Experience with another employer is a handicap rather than an asset."

The overwhelming majority were of the opinion that a course for dental assistants was not only a project of possible value but indeed a necessity. Many reasons were advanced in its favor.

At present the dentist is compelled to select his assistants from among a promiscuous group of applicants. He rarely finds one who has any definite experience which will be of value to him. He is usually more successful with an inexperienced girl than with one who has been trained by another dentist, for such training has frequently been individualistic and one-sided in character. She lacks a broad vision of her work.

The services of such an assistant, at least until after she has been with him several years, are not worth a liberal compensation. The dentist cannot afford to pay a high salary

until the worker earns it. It is difficult to get desirable material at the salary paid.

The turnover is very high. Many girls take up this work as a makeshift until they can obtain some object they desire. This may be marriage or some goal in the educational or industrial field. Some are waiting for an opportunity to enter a training school for nurses. Others are studying commercial subjects with a view to entering the business world. However worthy the object, the fact remains that many who are entering the occupation of dental assistant have no intention of remaining in the field. This does not tend toward a high standard for the occupation.

The girl now entering the occupation is an untrained worker, and as such must cope with certain disadvantages. In the first place, she cannot expect a good salary, even though she may have had years of experience in the field, for to a new employer she is worth little more than a beginner.

Secondly, she must learn on the job. She has no background which will enable her better to understand her work. Any scientific training she may have had was in such a form as to bear little or no relation to the problem confronting her. She must pick up her training by following whatever directions it may be found necessary to give her. The employer has no time to devote to giving her a graduated, progressive system of training which would fit her to fill any position. He must show her how to do the things he needs done, whenever he happens to need them. Not only does she learn exclusively the processes necessary to the particular kind of work her employer does, but she learns how to do these jobs in one particular way. Other methods might be far more efficient. In fact, if she understood the whole problem more thoroughly, she might be able to work out ways and means which would prove more successful, and would save time. However, such an opportunity rarely comes except with years of experience.

Then, too, if for some reason, possibly through no fault of her own, her employment with one person is terminated, she is compelled to seek another position at a beginner's salary, and to learn her job all over again.

Lack of training has been in many cases responsible for the inability of the assistant to meet the public. Some persons resent the attitude of employees who do not understand this part of their business. This leads to friction and misunderstanding frequently resulting in loss to both dentist and patient. Likewise inability properly to manage the office routine and bookkeeping causes inconvenience to patients as well as to the dentist. This does not imply that all workers in the occupation are at present inefficient and incompetent. There are a few dental assistants who have proved themselves qualified for their positions to a remarkable degree. Most of these have very unusual personalities and have worked for years with one employer. They are the persons who would have most profited by training.

There are few positions in which tact and efficiency are more necessary, and these can be developed properly for this type of work only by definite instruction. It was the consensus of opinion of those visited that a properly organized course could remedy many, if not all of the defects of the present system.

Benefits of Such a Course

It would provide definite training for an occupation which has proved desirable to a large group of workers. Upon completion of the course the girl would be fitted properly to fill a position, to understand her work, and to expect a salary commensurate with her value. In a course of training attention could be given to all phases of the work, thus centering the instruction around the needs of the worker rather than about those of an individual employer. A worker need no longer begin over again when her service with one employer is terminated.

It would provide for the dentists a group of trained assistants whom they could expect to be adequately prepared and fitted to do the work required. The only additional training needed by them would be instruction in a few details peculiar to his individual practice. He could accomplish a great deal more in a given time, for his assistant could anticipate his needs and take from him the responsibility of the details which ordinarily trouble him. This would be a financial gain as well as a physical and mental relief.

It would open up a new field for trained workers and raise the standard of the occupation. The public would no longer be caused the inconvenience of dealing with inefficient and tactless individuals. A digest of the findings resulting from these visits was compiled in the following form:

I.—General Facts Concerning the Job.

Place of employment: Office and operating room of a practicing dentist.

Length of the learning period: Two years.

Usual length of service: Comparatively short in most cases, due to lack of preparation.

Special health risks: None.

Age: .....16 or over.....
Sex: .....female .....
Special skill:...manual dexterity..
Personal: .....pleasant, tactful, courteous, obedient, neat, calm, dependable, resourceful.

Physical:

Height .....medium or below...
Eyesight .....good .....
Strength .....at least normal....
Appearance ..immaculate, business-like, inconspicuous.

Education .....two years of high school including.

English.—Correct use of the written and spoken language. Elementary business correspondence. Writing letters for such purposes as requesting an interview, making or breaking an appointment, sending or requesting the payment of a bill, ordering supplies, asking or giving information. Spelling, with emphasis on the use and meaning of medical terms. The cultivation of a pleasant speaking voice.

Mathematics.—Review of elementary processes in arithmetic for speed and accuracy.

General Science.—Physiology and hygiene, chemistry of metals and solutions used in dentistry, physics, especially relating to electricity and dental apparatus.

Commercial.—Typing, elementary bookkeeping.

II.—Duties of Dental Assistant.

General office work.

Open office and put it in order.
Attend to heating and ventilation.
Keep desks, tables, and trays clean and in order.
After work on each patient, clean all surfaces exposed to contamination.
Answer telephone and door bell.
Make appointments and keep record of them.
Prepare daily card list of appointments.
From daily card, chart operations completed on each patient and time spent.
Keep office books.
Make out and send monthly bills and statements, receipts, etc.
Pay bills.
Bank money.

Care of patients.
- Meet patient and take name.
- Call patient from waiting room.
- Take charge of his belongings, for example, glasses, wraps.
- Seat patient in chair.
- Adjust chair, headrest, towels.
- Assist patient when operation is finished.

Assisting the dentist at the chair.
- Lay out instruments for given work.
- Pass instruments as needed.
- Remove instruments when no longer needed.
- Assist in operating by keeping patient's mouth in as favorable condition as possible, for example, by using compressed air bulb, or sponging blood.
- Assist in operating by holding saliva tube, ball-burnisher, mirror, or other instruments in place.
- Assist with rubber dam and absorbent rolls.
- Prepare local anesthetic, and fill syringes.
- Mix plastic fillings.
- Anneal gold.

Care of instruments.
- Clean and sterilize instruments and supplies.
- Sort instruments and put them in place.
- Sharpen some instruments, such as chisels.
- Separate instruments not in good condition.
- Keep dentist informed as to number of instruments of each kind in good condition.

Care of supplies.
- Keep record of supplies on hand and needed.
- Order medical supplies.
- Order cotton and gauze preparations, such as absorbent rolls, napkins, cotton absorbent points, dental floss.
- Make up emergency supplies.

Occasional Duties

Laboratory work.
- Pour models.
- Make base plates.
- Cast inlays.
- Make amalgam dies.
- Polish bridges.

In anesthesia.
- Administer anesthetic or assist with patient under anesthesia by watching pulse, respiration, and eyes, or by using emergency measures in case of shock.

In radiography.
- Take and develop pictures.
- Mount and keep plates.
- Keep radiograph records.

III.—Knowledge Required in Terms of Teaching Units.

Business practice.
- Typing.
- Keeping office records, books, appointments, accounts.
- Keeping card files: operation records, histories, examination records, x-ray plates and findings, etc.
- How to draw and bank money.
- Ordering office supplies: stationery, towels, soap, paper cups.

General science, including:
- Physiology of the mouth, of the nervous system, and of the respiratory systems. Emergency measures in case of shock or hemorrhage. Effect of anesthesia, care of patient under anesthesia.
- Hygiene and sanitation. Principles of ventilation and heating. Principles of asepsis and sterilization.
- Health. Care of the body, especially feet, teeth, and nails. Posture and clothing.

Equipment and instruments.
- Operating chair and its adjustment.
- Sterilizers and their operation.
- Sterilization without machines.
- Cleaning and sharpening of instruments.
- Names and use of instruments.
- Construction and use of bulbs and syringes.
- Technic of operations. Order of use of instruments.
- Adjustment of clamps and rubber dams.
- Detection of defects on instruments.
- How to hold and pass instruments.

Dental supplies.
- Purposes and effects of medicines used by dentists. How to order them.
- How to order cotton and gauze supplies.
- Use of Dental rolls, absorbent points and pledgets, napkins, iodoform gauze strips, dental floss, etc.
- Sterilization of cotton and gauze supplies.

Laboratory technic. Dental mechanics.
- Use of the Bunsen burner, alcohol lamp and annealing trays.
- Use of all appliances of dental laboratories.
- Preparation of plastic and gold fillings.
- Making base plates.
- Making and investing wax patterns.
- Making amalgam dies.
- Polishing bridges.

Professional ethics and decorum.
- Moral standards and behavior.
- Attitude toward employer and work.
- Reception and dismissal of patients.
- Dealing with various types of patients, such as children, old people, hysterical persons, neurasthenics.
- Conversation.
- How to use the telephone.
- Appearance: clothes and hair.

Electives for advanced students.
- Court for anesthetist: administration and control of general anesthesia.
- Radiography: How to take dental radiographs. Developing, filling.

IV.—Promotional Opportunities.

The present system of selecting dental assistants promiscuously and of training them only to fill an individual job, limits promotion almost entirely to increase in salary. In some large offices where the dentist has an extensive general practice, and where several assistants are employed, there are promotions from one position in the office to another requiring greater skill, and entailing greater responsibility. This is likewise true where several dentists share a suite.

In a few isolated instances, dental assistants have advanced to special fields. Preliminary training will open up these fields more generally to promotion. Some of these are: Dental laboratory assistant; dental laboratory technician; executive positions in dental supply house; dental radiographer; and anesthetist.

Properly qualified dental assistants have occasionally taken courses at the College of Dentistry, and have become dentists. This course, together with the new course now being given by the University of California for dental hygienists, opens up opportunities for study and advancement for those who desire such.

A course of training for dental assistants would thus raise the standards of the vocation from that of the unskilled occupations to a high grade job requiring trained workers, and offering promotion possibilities. Is it not, therefore, worthwhile? California thinks so. One board of education is preparing to introduce the course into its technical high school at an early date. In fact, they are already offering a part of the course in an evening school for girls already employed as dental assistants.

A course of study is under preparation which will be sent out to boards desiring to introduce the course. It is planned to have the girls take the regular college preparatory course for two years, including those science courses which will form a foundation for some of the technical training. With the third year the vocational training will begin. She will still spend part of her time at academic work, but half the day will be devoted to the mechanical part of the course for dental assistant. During the fourth year she will spend half her day on academic subjects. During the first term she will devote her afternoons to those subjects of the technical course included under "Knowledge required in terms of teaching units" which have not been covered in the laboratory work of the previous year. During the second term, her last in school, she will spend her afternoons in gaining practical experience in her occupation. She will be employed under salary by a dentist. She will either assist a recently licensed dentist, whose practice does not warrant his employment of an assistant for full time, or she will go to the office of some dentist who uses the services of more than one assistant. Here she would be assistant to, and under the supervision of the full time employee.

When she has completed her course, she will be a regular graduate of the high school, and accredited to the university. She will also be proficient in her chosen occupation, as she has had not only the theory, but the practice.

The faculty of the College of Dentistry of the University of California is now working out the details of the technical courses. They plan to outline all the work to be given, and to include diagrams and drawings of all equipment. They expect to have this so graphically represented that the course can easily be presented in a uniform manner in any community which may desire to introduce it.

A Compilation of Current Notions on Feet

Tabulated from Inquiry Made of One Hundred Orthopedists and Thirty-Five Non-Medical Men

BY HERMAN W. MARSHALL, M.D., BOSTON, MASS.

A QUESTIONNAIRE on the basis of fifty items fundamental to the intelligent management of feet was prepared by the writer and distributed to orthopedists and retail shoe merchants. One hundred orthopedists from many cities of the United States and Canada have replied, and thirty-five non-medical answers have been received.

The original fifty statements with additions, comments and criticisms received are given in part below, and may be considered to represent the concensus of the opinion of medical and non-medical men on each item.

A few persons returned the set of questions without signatures. Others signed their names but made no criticisms. A few were liberal with comments. Many expressed their approval of the plan and the large majority of replies showed very considerable care in their preparation, so that only two were discarded as being unreliable. The entire set was examined personally by the writer, and very brief discussion of results is undertaken at the end of this paper. An asterisk has been used to identify the non-medical comments included in tabulations and may be considered to represent the concensus of the opinion.

QUESTIONNAIRE

(1)—*Shapes of feet and usefulness of feet vary independently.*

Orthopedists agreed, 99=99%; disagreed, 1=1%; doubtful, 0=0%; no opinion, 0=0%.

Shoe dealers agreed, 35=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

Duluth, Minn.—Disagreed.

(2)—*Some misshapen feet are strong and serviceable because muscles and ligaments that hold foot bones together and move them are unusually strong.*

Orthopedists agreed, 98=98%; disagreed, 0=0%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 34=97%; disagreed, 0=0%; doubtful, 1=3%; no opinion, 0=0%.

Boston, Mass.—The reason given why some misshapen feet are strong and serviceable is doubtful.

Boston, Mass.—Dr. A. G. Howard: Not the only reason.

(3)—*Some well formed feet are weak and unserviceable because muscles and ligaments are beginning to weaken from some cause, or because disease of bones or joints of the feet exists.*

Orthopedists agreed, 98=98%; disagreed, 0=0%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 35=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

Pittsburgh, Pa.—Dr. E. W. Fiske: They will not remain well formed if weak.

Shreveport, La.—Dr. L. C. Spencer: Doubtful.

(4)—*Majority of feet are sufficiently well formed and serviceable to do the work required of them, yet there is a wide range between maximum and minimum degrees of usefulness exhibited by such feet among different persons.*

Orthopedists agreed, 98=98%; disagreed, 0=0%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 33=94%; disagreed, 2=6%; doubtful, 0=0%; no opinion, 0=0%.

Los Angeles, Cal.—Dr. C. L. Lowman: This seems to be too inclusive. Fifty per cent of all people have some faulty foot statics. Your use of the word "serviceable" would lead one to think that one cannot have symptoms due to feet unless there were symptoms in the feet. Many feet of the type I mention are perfectly serviceable as far as feet are concerned, but the use of them represents many times a very serious nerve loss because of faulty balance. In other words, many remote symptoms are traceable to feet that are apparently symptomless in themselves.

(5)—*Heights of arches do not measure the strength of usefulness of feet accurately. Numerous symptomless strong feet are observed, as well as weak contracted feet with unusually high arches.*

Orthopedists agreed, 100=100%; disagreed, 0=0%; doubtful 0=0%; no opinion, 0=0%.

Shoe dealers agreed, 34=97%; disagreed, 1=3%; doubtful, 0=0%; no opinion, 0=0%.

San Antonio, Tex.—Dr. E. A. Cayo: Flat feet may be symptomless, provided the arch is not depressed to the point of supporting contact. One of the chief causes of flat foot is the natural defect of improper alignment of the leg and foot, with the result that both muscle action and gravity act to evert and depress the foot. Another cause is lack of development of foot muscles, this being due to the wearing of shoes (any shape, continuously) during the formative period of the feet.

San Francisco, Cal.—Dr. C. H. Smith: There are numerous strong feet, flat as to imprint of sole, but not abducted on head of astragalus. These feet do not show an atrophied posterior tibial muscle nor a buckled arch.

**Boston, Mass.*—The second sentence is the exception rather than the rule.

(6)—*Flat foot signifies that ligaments and muscles have stretched at some time in the remote or immediate past. There may or may not have been subsequent restoration of muscular and ligamentous strengths, as existing strength cannot be told from appearances.*

Orthopedists agreed, 84=84%; disagreed, 13=13%; doubtful, 3=3%; no opinion, 0=0%.

Shoe dealers agreed, 31=88%; disagreed, 3=9%; doubtful, 1=3%; no opinion, 0=0%.

Hartford, Conn.—A certain amount of flat foot may be perfectly normal to a race, family, or individual.

Worcester, Mass.—I assume that "remote" may be interpreted as congenital.

New York City.—Many flat feet are congenital, especially among Negroes.

Brooklyn, N. Y. Long Island Hospital—Agreed with first sentence, disagreed with second sentence.

Denver, Colo.—Dr. C. M. Spicer: Disagreed.

San Francisco, Cal.—Disagreed that ligaments stretch. Ligaments of white fibrous tissue and cannot stretch. They pull out of exostosis which simulates stretching.

(7)—*Causes of muscular or of ligamentous weakness many times are found in obscure defects of circulating blood, and at other times in nervous diseases that affect nerves running to foot muscles, producing weakness.*

Orthopedists agreed, 86=86%; disagreed, 2=2%; doubtful, 11=11%; no opinion, 1=1%.

Shoe dealers agreed, 27=77%; disagreed, 0=0%; doubtful, 2=6%; no opinion, 6=17%.

New York City—Causes of weakness should include thrombosis, obliterating endarteritis, metobolic disturbances, scorbutus, rickets, osteomalacia, osteitis deformans.

Kansas City, Mo.—Dr. James R. Elliott: Focal foot infections may be causes of weakness.

**Memphis, Tenn.*—Caradine Shoe Company: Proper fitting will correct muscular trouble.

New York City—Dr. Leo Mayer: Doubtful whether obscure defects of circulating blood are causes of muscular or of ligamentous weakness.

Toledo, Ohio—Dr. N. J. Saybold: Say "occasionally" rather than "many" times that causes are found in obscure blood defects.

Chicago, Ill.—Occasionally, but not commonly.

(8)—*Excessive mechanical strain from overuse or injury is a very common exciting*

cause of weakness of muscles and ligaments. Slight strains acting on muscles already weakened produce effects somewhat similar to greater strains acting on stronger muscles.

Orthopedists agreed, 100=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

Shoe dealers agreed, 35=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

(9) *There are long narrow feet, and short broad ones, also many minor variations in foot proportions among different individuals. All variations may be considered normal in many instances, and due to natural variations in development of bones.*

Orthopedists agreed, 99=99%; disagreed, 0=0%; doubtful, 7=1%; no opinion, 0=0%.

Shoe dealers agreed, 33=94%; disagreed, 1=3%; doubtful, 1=1%; no opinion, 0=0%.

(10)—*Feet possessing average bony development and similar shape may have different degrees of efficiency however, because of differences in muscles and ligaments controlling them. Too much stress, therefore, should not be laid on ideal foot form or foot posture. Bony development does influence foot efficiency, but in ways that are difficult to estimate.*

Orthopedists agreed, 94=94%; disagreed, 4=4%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 31=88%; disagreed, 0=0%; doubtful, 2=6%; no opinion, 2=6%.

Cincinnati, Ohio—Dr. R. B. Canfield: It is questionable whether too much stress can be laid on ideal foot form or foot posture.

New York City—Disagreed that too much stress can be laid on ideal foot form or posture.

Hartford, Conn.—Dr. Robert M. Yerkes: In my opinion it is fundamentally necessary to distinguish between the normal foot and the average foot. The average foot is the racial normal not that of the individual necessarily.

(11) *Feet exhibiting differences of form and posture sometimes may possess exactly the same degrees of efficiency as far as can be detected. This is due to muscles and ligaments of differing strengths acting on bones of differing development, the combined effects of bones, muscles, and ligaments equalling each other in different persons.*

Orthopedists agreed, 93=93%; disagreed, 1=1%; doubtful, 5=5%; no opinion, 1=1%.

Shoe dealers agreed, 30=85%; disagreed, 0=0%; doubtful, 1=3%; no opinion, 4=12%.

(12) *Normal foot function results from adequate exercise and adequate rest for bones, joints, ligaments, and foot muscles. When there are restrictions imposed by shoes there are slight effects produced which are not measurable in many instances.*

Orthopedists agreed, 95=95%; disagreed, 0=0%; doubtful, 4=4%; no opinion, 1=1%.

Shoe dealers agreed, 34=97%; disagreed, 0=0%; doubtful, 1=3%; no opinion, 0=0%.

**Memphis, Tenn.* These slight defects may result seriously if not detected.

(13) *Prolonged disuse causes muscles and ligaments to weaken and shrink slowly. Excessive use causes them to become irritated, strained, and weakened. An alternation of exercise and rest is essential for maintenance of average strength.*

Orthopedists agreed, 98=98%; disagreed, 0=0%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 33=94%; disagreed, 0=0%; doubtful, 1=3%; no opinion, 1=3%.

(14) *Greatest foot strength depends on maintenance of best proportions of alternating exercise and rest, in muscles and ligaments originally well developed at birth, and on continued excellent quality of circulating blood.*

Orthopedists agreed, 96=96%; disagreed, 0=0%; doubtful, 4=4%; no opinion, 0=0%.

Shoe dealers agreed, 31=88%; disagreed, 1=3%; doubtful, 1=3%; no opinion, 2=6%.

Columbus, Ohio.—Add at end of sentence "and good sensible shoes."

Toledo, Ohio. It is doubtful whether greatest foot strength depends on continued excellent quality of circulating blood.

(15)—*Feet are adaptable. They will accommodate themselves without appreciable harm for short periods of time to ill fitting, poorly shaped shoes of various sorts, or to complete immobilization in plaster of Paris casts, or to free barefooted states.*

Orthopedists agreed, 97=97%; disagreed, 1=1%; doubtful, 2=2%; no opinion, 0=0%.

Shoe dealers agreed, 28=79%; disagreed, 4=12%; doubtful, 2=6%; no opinion, 1=3%.

Columbus, Ohio—Ohio State University—Dr. H. Shindle Wingert: They will not accommodate themselves without considerable discomfort.

Baltimore, Md. Dr. Sydney M. Cone: Agreed, if emphasis is laid on "short" periods.

**Rawlins, Wyo.* E. Mosher: I do not believe that any foot can be put into an ill-fitting or poorly shaped shoe, and the shoe worn more than a day or two at a time without injury to the foot.

**Rochester, N. Y.*—Some feet will adapt themselves, not all.

**West Chester, Pa.*—C. O. Hoffman: Doubtful.

**Memphis, Tenn.* Shoes that are too short will cause joint trouble very quickly.

**Boston, Mass.* They will accommodate themselves without appreciable harm for short periods only, but harm is gradually resulting.

New York City.—Dr. V. P. Gibney: Agreed.

(16) *If a single foot posture is maintained continuously without change for a very long period, then feet will adapt their shapes slowly to this position until it tends to become the natural comfortable posture of repose.*

Orthopedists agreed, 76=76%; disagreed, 7=7%; doubtful, 16=16%; no opinion, 1=1%.

Shoe dealers agreed, 26=74%; disagreed, 5=14%; doubtful, 3=9%; no opinion, 1=3%.

Boston, Mass. If you mean that bad static posture of the feet may become a tolerably comfortable one after years, I agree.

New York City—Dr. Henry Keller: Agreed, provided the wearer is very young and the bones are soft and moldable.

Detroit, Mich.—Dr. C. L. Storey: Doubtful, varies with different feet.

Chicago, Ill.—Doubtful, depends on posture assumed.

Des Moines, Ia.—Doubtful as to comfort.

Memphis, Tenn.—Dr. T. H. Ingram: Doubtful.

Boston, Mass.—Dr. R. B. Osgood: Doubtful.

Boston, Mass.—Dr. Chas. F. Painter: Say "feet may adapt themselves" rather than "feet will adapt themselves," then I agree.

Brooklyn, N. Y.—Agreed if the foot posture is a good one, otherwise disagreed.

**Milwaukee, Wis.* S. J. Brouwer, of The S. J. Brouwer Shoe Company: I presume that a posture of repose would mean a Chinese woman sitting still. For maximum, full, efficient strength we need to restore the foot to normal.

(17)—*Painless deformities of variable degrees may develop in this manner from the continuous wear of a single size and shape of shoes. Bones slowly change their shapes. Some muscles and ligaments stretch while others shorten naturally until unequal pressures and strains are brought finally into a state of equilibrium in the selected fixed posture.*

Orthopedists agreed, 82=82%; disagreed, 9=9%; doubtful, 7=7%; no opinion, 2=2%.

Shoe dealers agreed, 28=79%; disagreed, 4=12%; doubtful, 1=3%; no opinion, 2=6%.

New York City.—Dr. T. Halsted Myers: Disagreed.

Chicago, Ill. Painless for a time.

Los Angeles, Cal.—Disagreed.

**Rochester, N. Y.*—Agreed, generally, yes.

Hartford, Conn.—Ligaments do not stretch but pull the periosteum from the bone, giving pain. The bone then grows into the space under the elevated periosteum. Thus arise deformities of bones which gradually alter their shapes. Ligaments will tear before they will stretch.

(18) *There is no single ideal shape or style of shoes that is best continuously for all foot conditions.*

Orthopedists agreed, 90=90%; disagreed, 7=7%; doubtful, 1=1%; no opinion, 2=2%.

Shoe dealers agreed, 31=88%; disagreed, 1=3%; doubtful, 1=3%; no opinion, 2=6%.

**Muskegon, Mich.*—Louis P. Haight: I believe that there should be a single shape or style of shoe, and that all shoes which do not agree with this standard shape are incorrect; in other words, there can be but one correct measurement of anything, and that shoes which have been manufactured thus far have been made for style and sale rather than from anatomical lines. There should be a standardization of American shoes.

(19) *Many shapes, proportions, and sizes of shoes are needed at times to fit the many shapes, proportions and sizes of feet.*

Orthopedists agreed, 94=94%; disagreed, 4=4%; doubtful, 0=0%; no opinion, 2=2%.

Shoe dealers agreed, 32=91%; disagreed, 1=3%; doubtful, 0=0%; no opinion, 2=6%.

Sacramento, Cal.—Dr. J. M. Crawford: Disagreed.

Chicago, Ill. Dr. Schenkelberger: I am inclined to place more blame on poorly shaped and badly fitted shoes than on Nature and lack of proper foot development. Development is hampered by bad shoes even before the child is two years old. Tiny baby shoes are made at least one-quarter of an inch wider at the heel than any normal baby's foot, and there is absolutely no fit in the arch. The tread is either very wide or the shoe fitted too short. Parents should no more think of buying pointed toed shoes for a growing child than they would adopt a square fingered glove for the hand or a three-cornered hat for the head.

Worcester, Mass. There is a limit that can be reached beyond which the study of shoes possesses but slight merit.

Brooklyn, N. Y. Dr. Taylor: Suggests a temporary 'treatment' shoe for use while temporary apparatus is being worn. It would allow comfort while feet were being packed and trapped, while wearing inside supports with metatarsal pads, and while having convalescent dressing after surgical care. He suggests (a) as the greatest possible change, one that is similar to best foot shaped last available now with stiff shank. (b) More front vamp room, i. e., more upper leather from side to side from base of toe forward. (c) Soft vamp with no boning.

Pittsburgh, Pa.—Dr. E. W. Fiese: States there are two important points which should be put up to the shoe man. (1) The principles of a good shoe, namely, straight line inside or outlare on prescription from orthopedic surgeon. Good toe room and anterior foot space. Relatively strong heel and instep. (2) Recognition of the pathological foot by shoe fitters. Condemnation of store arch supporters and store doctors. Serious disabilities following lay advice and treatment of flat foot. Realization that a shoe seldom more than aids a pathological foot, that feet should be measured for relief carefully as eyes are, and treated by orthopedists.

(20) *Shoes have to be adapted to feet in some instances, while feet must be adapted to shoes at other times.*

Orthopedists agreed, 74=74%; disagreed, 17=17%; doubtful, 6=6%; no opinion, 3=3%.

Shoe dealers agreed, 23=65%; disagreed, 6=17%; doubtful, 3=9%; no opinion, 3=9%.

Pittsburgh, Pa.—Agreed that poor feet may need to be adapted to good shoes at times.

**Boston, Mass.*—F. W. Small, Gilchrist Company: Deformed conditions may be slightly bettered by improved shapes of shoes.

New York City—Shoes, like braces, should be applied after correction of deformity in order to retain shape, and not for correction.

New York City.—Dr. Armitage Whitman: Disagreed.

Cincinnati, O.—Dr. Albert H. Freiberg: Disagreed.

San Antonio, Texas.—This is absolutely all wrong.

**Muskegon, Mich.*—If feet are sore they should be corrected before being fitted to any kind of shoes.

(21) *Shoes have to be adapted carefully to feet that are even sore or weak. Deformed, symptomless strong feet should be adapted gradually to improved shapes of shoes. Compromises between these two methods must be made frequently when complete lines of shoes are not available.*

Orthopedists agreed, 91=91%; disagreed, 4=4%; doubtful, 2=2%; no opinion, 3=3%.

Shoe dealers agreed, 28=79%; disagreed, 1=3%; doubtful, 2=6%; no opinion, 4=11%.

New York City.—Disagreed that deformed, symptomless strong feet should be adapted to improved shoes.

**St. Johnsburg, Vt.*—Amey & Reed: I question the advisability of changing the shape in a deformed nature shoe, if it is strong.

(22)—*Several pairs of shoes of slightly different shapes, sizes and hardness are better to wear than a single fixed style, especially if the person is in good health and has considerable adaptable feet.*

Orthopedists agreed, 29=39%; disagreed, 33=33%; doubtful, 26=26%; no opinion, 2=2%.

Shoe dealers agreed, 15=43%; disagreed, 15=43%; doubtful, 3=8%; no opinion, 2=6%.

**Greenberg, Ind.* Roy C. Kanouse: Wear one style.

**Boston, Mass.* The shape and proportion best adapted should be generally worn.

**Fort Worth, Tex.*—R. M. Lozier: Manufacturer. Brothers: Disagreed.

**Memphis, Tenn.* Not without pain.

**Rochester, N. Y.* If the shape and style is right then several pairs of the same kind are all right.

San Antonio, Tex. Dr. Cave: This is as free from scientific expression as a feather from feathers.

Louisville, Ky.—Dr. B. S. O'Brien: Disagreed.

Cambridge, Mass. Dr. W. J. LaMascus: The individual foot has always the same shape. Why change it by presenting different shapes of shoes?

Washington, D. C. Dr. C. L. Hall: Agreed.

Boston, Mass. Dr. H. W. Marshall: Several pairs of shoes of slightly different shapes, of different degrees of toughness, of different shapes, of different degrees of flexibility, will tax the feet more than a single style. A young woman who wears at appropriate times sensible foot shaped lasts, heelless, flexible spring shoes, and high heeled pumps at times, subjects her feet to increased tasks that are beneficial as long as they are not too great, and if they assist in retaining foot comfortability. She will not suffer if she attempts to walk without shoes, as some persons do who

have been propped up continuously for long periods in stiff shanked, good shaped, snugly fitted, very comfortable shoes. There is possibility of enjoying too great and too continuous comfort. Do not let the feet lose their adaptive powers. Let people wear different shoes if they can for exercise as well as for corrections of supposed foot defects. To make such changes of footwear, however, after the person has been long accustomed to a single type and size usually is a very difficult task and should be undertaken very gradually, if at all. A barefooted savage subjects his feet to conditions, many of which would be quickly harmful if maintained continuously, yet continual changes of all sorts tend to keep his feet in best condition.

Milwaukee, Wis.—S. J. Brouwer Shoe Company: Normal, adaptable feet do not last a lifetime if shoes are worn that vary in size, shape, and balance to any appreciable extent. If such a doctrine were preached to the general public, too many would be prone to wear shoes too small for them.

(23)—*A healthy young adult can wear without harm for very brief intervals, almost any shoe shape or height of heels, and when this capacity begins to be lost then old age is creeping on, or muscles and ligaments are weakening from some other cause, or local disease processes are developing in bones or joints of the feet.*

Orthopedists agreed, 70=70%; disagreed, 16=16%; doubtful, 10=10%; no opinion, 4=4%.

Shoe dealers agreed, 24=68%; disagreed, 7=20%; doubtful, 1=3%; no opinion, 3=9%.

Cincinnati, O. Potter Shoe Company: Agreed for very brief intervals.

**Rochester, N. Y.*—Agreed if size and fit are all right.

**Memphis, Tenn.*—Continuous abuse will produce premature aging of the feet.

Worcester, Mass.—Dr. F. W. George: I believe this statement is too broad.

Indianapolis, Ind.—Dr. E. B. Mumford: Disagreed.

Kansas City, Mo.—Dr. J. D. Griffith: Doubtful.

Columbus, O.—Dr. Wingert: Positively no.

**Milwaukee, Wis.*—I know from actual experience that disease tends to settle in parts where wrong shapes and wrong heels have been used, even for a short period. People grow old earlier because of improper body balance, resulting from shoes not built correctly on the inside as to the lines of the inner sole following the contour of the arches.

(24)—*Flexible shanked shoes are best usually for strong, symptomless feet because they permit most exercise.*

Orthopedists agreed, 82=82%; disagreed, 8=8%; doubtful, 8=8%; no opinion, 2=2%.

Shoe dealers, agreed, 26=74%; disagreed, 4=12%; doubtful, 5=14%; no opinion, 0=0%.

**Rochester, N. Y.*—Agreed for strong symptomless feet. Flexible shoes otherwise are very harmful and dangerous.

Brooklyn, N. Y.—Agreed unless the individual is very heavy.

Hartford, Conn.—Dr. Ansel G. Cook: I have no objection to flexible soled shoes such as moccasins for normal feet, but when you put a heel, any kind of a heel, on a shoe with a flexible shank you have disturbed the balance and thrown an added pressure on the longitudinal arch of the foot. Some feet are strong enough to bear this added strain and some are not. Some people with very broad, short feet, do not require, in fact, cannot wear a shank. In such cases a broad, low heel gives all the support required. With this exception all shoes that have heels should also have adequate shanks.

Denver, Colo.—Dr. S. Fosdick Jones: Personally, I do not approve of flexible shanks either for deformed or normal feet.

(25)—*Stiff shanked shoes are best usually for delicate persons whose foot muscles and ligaments never acquire average degrees of strength, or for those with disease in bones of the feet.*

Orthopedists agreed, 79=79%; disagreed, 9=9%; doubtful, 7=7%; no opinion, 5=5%.

Shoe dealers agreed, 29=82%; disagreed, 4=12%; doubtful, 2=6%; no opinion, 0=0%.

**Memphis, Tenn.*—Stiff shanked shoes are especially good for advanced age and increased weight.

**Rochester, N. Y.*—Wm. Pidgeon: Stiff shanked shoes if properly fitted are all right for everyone.

**Muskegon, Mich.*—A stiff shanked shoe which will hold such a foot in position would tend to weaken rather than strengthen it, and I should prefer strengthening the muscles and putting such a foot into a standard shoe.

Chicago, Ill.—Stiff shanked shoes are best for a time until muscles can be built up.

Atlanta, Ga.—Doubtful whether stiff shanked shoes are best usually for persons with disease in bones of feet

San Francisco.—Dr. Hunkin: I do not think a definite statement can be made in such manner.

Chicago, Ill.—Dr. F. C. Text: Agreed, splints, in other words.

Pasadena, Cal. Dr. Wm. A. Clark: Doubtful.

**Milwaukee, Wis.*—I would add that stiff shanks are for rest purposes only. Stout people frequently come in this class. I would not put a rigid shank on a delicate person whose foot muscles and ligaments have only average strength, but instead would use flexible shank shoes in which the uppers act like a bandage.

(26)—*There are many degrees of flexibility and stiffness of shanks, and an individual should wear as flexible footwear as his foot strength at any specified time will permit. He may wear stiff shanked shoes for brief periods with advantage when feet weaken for brief periods. He may wear flexible shoes continuously if his foot strength remains adequate continuously.*

Orthopedists agreed, 85=85%; disagreed, 11=11%; doubtful, 1=1%; no opinion, 4=4%.

Shoe dealers agreed, 22=63%; disagreed, 8=23%; doubtful, 5=14%; no opinion, 0=0%.

**Lincoln, Neb.*—Budd Shoe Company: Disagreed.

**Dallas, Tex.*—Volk Brothers Company: Doubtful.

Nashville, Tenn.—Dr. R. W. Billington: The shank of the foot touches the sole of the foot only along its outer border; and does not support the long arch or prevent pronation or strain on the arch, no matter if the shank is stiff. Support of this arch depends on a broad, long heel built up at front and inner corner. This gives support directly, also indirectly, by preventing pronation. An additional help is a narrow shank well curved or cut under at the right border. A broad, stiff shank serves as a stiff board to which the foot is strapped and thus flattened as the shoe is laced.

Boston, Mass.—Dr. H. W. Marshall: Some persons reason that, if a flexible shoe is right, then a stiff shoe is wrong. This may be a logical conclusion, but physiological peculiarities of muscles rather than logic determine whether flexible or stiff shoes are better. Muscles vary in development as much as bones. Some are weak. The same muscles in other individuals are very strong. Rarely some muscles may be entirely missing, while in other instances unusual accessory muscles are developed. Therefore, some persons have congenital tendencies toward foot weakness or great foot strength. All muscles will grow stronger with proper use up to a certain limit, but this can be, and often is, exceeded. The limit is much greater for large muscles than for congenitally small ones. When the limit, whatever it is, is exceeded, there should be given support to the strained muscles until means are found for reducing the demands made on them. Adhesive strappings properly applied are superior to all other means for slight strains of comparatively brief duration. Carefully graduated exercises in some form generally should be provided after the vacations for muscles by strappings have been terminated. Many non-medical men and a few orthopedists apparently do not realize fully that without appreciable change of habits, without injury or increased use of the feet, muscles may slowly weaken under subtle undermining vascular and nervous influences. A person may be well fitted with flexible shoes at one time, while several months later, for no very obvious reason except perhaps slight debility, and slight loss of weight, some form of support is found best, temporarily. The latter needs in turn may be replaced after a longer or shorter period by new ones. Muscular strength and tone shift from time to time, yet always tend to settle into a state of equilibrium that is calculated to fit the individual's particular requirements at the given period.

(27)—*Feet can serve as indicators of health. In modern complex life there are noticed many individuals with recurring mild, short attacks of foot strain. Foot conditions roughly fluctuate with states of a person's health. The step is elastic, light, firm and brisk in good health. It is less elastic, heavier and slower as debility comes on and as definite foot weakness appears.*

Orthopedists agreed, 92=92%; disagreed, 1=1%; doubtful, 6=6%; no opinion, 1=1%.

Shoe dealers agreed, 31=88%; disagreed, 2=6%; doubtful, 2=6%; no opinion, 0=0%.

Worcester, Mass.—In many but not all cases of ill health.

**Hutchinson, Kas.*—Some people have bad feet, but are perfectly healthy.

(28)—*Removable foot supports for longitudinal arches possess important advantages in being easily regulated in their use. They permit support in mild cases of foot strain for brief periods, and need not be worn too long, as may happen more frequently if stiff shanked shoes alone are relied on without other types to change to.*

Orthopedists agreed, 78=78%; disagreed, 12=12%; doubtful, 7=7%; no opinion, 3=3%.

Shoe dealers, agreed, 25=72%; disagreed, 5=14%; doubtful, 5=14%; no opinion, 0=0%.

New York City—Agreed theoretically, but most people wear them all of the time or not at all.

Philadelphia, Pa.—Dr. Rugh: I use these supports only for relief of pain which will not yield to balanced shoes.

San Francisco, Calif.—Dr. A. L. Fisher: I believe that all stiff shanks and all plates are to be avoided excepting possibly Whitman plates.

Des Moines, Iowa—Properly fitted shoes and exercises are better.

Oakland, Calif.—Dr. N. Austin Cary: Opinion depends on type and construction of arches used.

Cleveland, Ohio—Dr. Gordon N. Morrill: I do not use plates for any but the anterior arches, and have found much to my relief and to my patients' relief, that teaching them how to stand and to walk is 99 per cent of the game.

**Rochester, N. Y.*—It all depends on what kind of stiff shanks are worn.

**Muskegon, Mich.*—I have found that the cause of longitudinal arch trouble is almost always due to turning out of the feet thereby stretching the muscles.

**Chillicothe, Ohio*—Herman Brothers: At least a dozen representatives are building so-called arch support shoes, and most of them have merit. Supports can be built in several types of lasts, which I think is correct, as it does not compel different styles of feet to conform themselves to the swing last or extreme broad shank. One may be correct in one instance and wrong in another.

Kansas City, Mo.—Dr. Robt. McE. Schauffler: Agreed, with reservations as to the kind of support.

**Milwaukee, Wis.*—If a person is selling all sorts and shapes and kinds of shoes, and merely wants to "get by," merely removable supports will answer; but, from my experience, I feel that where shoes are built anatomically correct as far as the shape and contour of the inner sole are concerned, people ought not to be abused with extra supports shoved into shoes that are incorrect in their alignment.

(29)—*Removable supports can be inserted in flexible shoes, converting them into stiff shanked types temporarily, and thus extending the limits of range of flexibility and stiffness obtainable with a single pair of shoes. By grading amounts of support by numbers of hours that supports are worn daily, transitions can be made gradually and conveniently from one type to the other.*

Orthopedists agreed, 76=76%; disagreed, 15=15%; doubtful, 5=5%; no opinion, 4=4%.

Shoe dealers agreed, 19=54%; disagreed, 6=17%; doubtful, 5=14%; no opinion, 5=14%.

Philadelphia, Pa.—Dr. Arthur J. Davidson: It can be done but is it advisable?

Iowa City, Iowa—Dr. A. Steindler: No flexible shanks for the uncompensated foot.

San Francisco, Cal.—Dr. G. J. McChesney: I consider arch supports unnecessary. Lessen the load on the arch and strengthen the arch supporting structures. I throw the weight toward the outer side of the foot by built up shoes, correct the posture in walking, and give exercise to strengthen the tibial muscles. When this is not enough to correct the condition, rest in bed and plaster splints are indicated.

San Francisco, Cal.—Absurd to put supports in flexible shoes.

Kansas City, Mo.—Dr. James R. Elliott: I do not use rigid supports.

New York City—These cases should have padded insoles instead of stiff metal plates.

Birmingham, Ala.—Dr. E. L. Scott: Disagreed.

Rochester, N. Y.—Disagreed, the heel and ball will pull apart, and that ruins the foot.

Los Angeles, Cal.—Dr. Lowman: This is misleading in that such a course might lead many patients to keep on wearing an old flexible pair of shoes bought early in the course of treatment, which represent more or less their old faulty condition. I agree that the transition can be made gradually from a stiff to a flexible shoe, but it should be understood that the shoe is of an entirely new type which represents an advance. The gradation should be one of going from arch plates to stiff shank shoes, and later from stiff shank shoes to flexible shoes if desired.

(To be continued)

Sanitation in National Parks and Monuments

Careful Inspection and Regulations Protect Tourists to National Parks

By H. B. HOMMON, Sanitary Engineer, U. S. Public Health Service, Washington, D. C.

THERE are seventeen national parks, and twenty-four national monuments in the United States proper, and two parks in the possessions that are under the supervision of the National Park Service. In 1916, the number of visitors to thirteen of the parks was 356,000; a year later this number increased to 811,500 for sixteen parks and six national monuments; in 1920, the visitors to seventeen parks and eleven monuments numbered more than a million; and at the end of the season for 1921 the total registration for eighteen parks and thirteen monuments was almost one and one-quarter millions.

The Director of the National Park Service, commenting in his annual report for 1921 upon this remarkable increase, states that it was due to the World War and further "that when the conflict was successfully ended and the time had come for recuperation, tired minds and bodies turned to the national parks. At once, park travel leaped to unprecedented figures. Our tourist facilities were overwhelmed, but still the crowds came. The travelers returned refreshed, rejuvenated, better men and women from their visits to the great open breathing spaces, and returning they inspired others with the lure of the parks and their sublime scenes." The tide of tourist travel which formerly flowed toward foreign lands was stopped during the war and for a short time after the armistice and it has now turned to the national parks and monuments of our own country.

In the earlier history of the national parks, practically all the tourists came by train to the nearest adjoining cities or towns and from these points were carried through the parks in horse-drawn vehicles. During recent years, however, private automobile parties, encouraged by improved highways, have been coming to the parks in large numbers. The registration the past season shows that 65 per cent of all visitors to the parks and monuments came in private automobiles, and about one-half carried their own camping equipment. This feature of park travel has complicated the problems of park management, especially those relating to sanitation.

Before the advent of the automobile traffic in the parks, the visitors who went to the parks by train were comparatively few in number and they did not range far from the point of special interest. Recently, however, the private automobile parties and the increase in travel by trains have changed the old order and we now find the visitors frequenting all parts of the parks. This is highly desirable for it permits the people to see more of the scenery and treasures of the parks than ever before, but it has introduced problems of camp sanitation that formerly did not exist such as securing ample and pure water supplies, disposing of garbage and sewage, and inspection of food supplies.

The Director of the National Park Service, recognizing the problems of sanitation introduced by the private automobile and the general increase in travel to parks by trains, and having no trained personnel to take care of this work, requested that the Surgeon General of the United States Public Health Service detail a sanitary engineer to the Park Service to cooperate with the superintendents of the various parks and monuments in improving sanitation. The writer was assigned to this work in the spring of 1921 and during the year most of the larger parks were visited.

The investigations made last summer showed that, while all the parks have the same general problems of sanitation, each has one or more that is of particular importance. The pictures show the differences in location and character of various places in the parks where proper sanitation must be provided; the sewage treatment plant at Yosemite National Park; and the method of getting water for all purposes to the El Tovar Hotel and administration headquarters of the Grand Canyon. The reports of the investigations indicated the improvements which should be made and a brief summary of all the recommendations will indicate the methods that are to be followed in the parks in handling the various problems of sanitation.

Water Supplies.—Field surveys of the sources of all drinking water supplies will be made and also bacteriological analyses where there is doubt about the quality of the water. Watersheds which are sources of supplies will be posted and no trails or camping parties permitted on them, and storage reservoirs will be protected from contamination.

Milk and Food Supplies.—Regular inspections will be made of dairies selling milk inside the parks and of all places handling food. In some of the parks the milk is produced inside the boundaries while at others it is

Sewage treatment plant in Yosemite National Park showing [illegible] three sections of sludge beds and [illegible]

Water tank cars for hauling water ninety-eight miles from Flagstaff, Arizona, to the Grand Canyon National Park. No water is available on the top rim of the Canyon.

shipped in. At many of the parks, the food must be carried long distances in trucks and careful supervision will be maintained to see that it is delivered in proper condition.

Sewage Disposal.—Sewage treatment plants will be installed wherever there is a sewerage system and sewage is polluting a body of water that is used for drinking purposes. Sterilization will be included under certain conditions. A sewage treatment plant will be placed in operation this year to treat all the sewage from the floor of the valley at Yosemite National Park, and at Yellowstone several new plants will be in operation this season at different places in the park.

Garbage Disposal. — The present method of disposing of garbage in most of the parks is to haul it to dumps located in out of the way places. Bears frequent the dumps for food and they furnish one of the interesting sights of the parks. This method is satisfactory where the season is only about 90 days long, and when the dumps are far enough away so there are no nuisances from flies and odors at the camps and hotels. At some of the parks, however, incinerators will be required in the near future.

Government Automobile Camp Grounds.—Visitors traveling to the parks in their own automobiles either camp on grounds set apart by the superintendents of the parks, or they stay in hotels or camps operated by private companies. Last season 50 per cent of the visitors who came to the parks in their own automobiles carried their own camping equipment.

Practically all the camping grounds in the parks have an ample supply of pure running water. Garbage cans are provided in the larger camps but for the smaller ones garbage is buried in pits dug at the edge of the camps. Where sewerage systems are not available, the common outside privies are used. They have been the source of much trouble in the past and the following recommendations have been made for their supervision this coming season. (1) Appoint an inspector, preferably, an active laborer, to look after each camp ground with special reference to the privies. (2) Spray the entire contents under the privy seats twice a week with a 3 per cent solution of compound cresol solution. (3) Keep the earth banked up around the privy buildings to prevent flies from reaching contents of the vaults.

Mosquito Control.—The species of mosquitoes that carry malaria or other diseases have never been found in any of the national parks but the others have caused considerable annoyance. Mosquitoes have been practically eradicated from Yosemite National Park by drainage work and oiling and active operations along these lines will be undertaken in other parks this season. The greatest handicap now existing in the control of mosquitoes is the lack of funds for drainage and other work to destroy breeding places.

The superintendents of the various parks and monuments thoroughly appreciate the importance of the problems of sanitation and they have cooperated heartily in carrying out the recommendations made for improvements. Except in a very few cases, Congress has as yet provided only very meager funds for improving water supplies and disposing of sewage and garbage and the Park Service deserves much credit for the excellent work done with the small amount of money that has been available. If the rate of increase in travel of the past few years continues in the future, it will be essential that the ap-

The automobile, bringing tourists in larger numbers each year to the National parks, has greatly increased the sanitary problem. The Government maintains camping grounds for the automobilist at various points, the one pictured being in Mount Rainier National Park, Montana.

A camp amid giant sequoias, Sequoia National Park, California. Aside from insuring a safe water supply, an adequate sewage and garbage disposal, government sanitary engineers are eradicating the mosquito.

propriations for the various parks be sufficient to provide ample and pure water, and to remove and properly dispose of sewage and all other liquid and solid wastes from the hotels and camps.

Last season almost one and one-quarter million people visited the national parks and monuments and this year the total number may be increased to one and one-half million. These people are the guests of the Government while in the parks, and it should be the duty of the Government to provide all the facilities necessary to protect their health. For the present, the parks are in excellent sanitary condition but this condition cannot long be maintained unless improvements are made.

The New Dentistry Act

By Our London Correspondent

ENGLISHMEN and English women have been notorious for their carelessness as regards the condition of their teeth and gums. The war, to a large extent, has changed the situation in this respect. Examination of those volunteering and conscripted for the army revealed an almost appalling state of affairs so far as oral hygiene was concerned. The fact was recognized by the medical profession that steps must be taken promptly to place the mouths of the English population, and especially of the working classes, in as aseptic condition as possible, although the menace of pyorrhea, alveolitus, carious teeth and so on, might be exaggerated, they certainly were causes of much ill health. However, many difficulties beset the paths of personal hygienic reformers in this direction, not the least of which was that the supply of dentists was extremely limited, and of skilled dentists in particular. Consequently, the Dentist's Act was drawn up and passed, and has now been working for about five months.

The Dentist's Act came into existence last summer and was designed to do two things, which are one and the same, namely, to provide an adequate supply of properly trained dentists to meet an admitted shortage; and secondly, to put an end to the cruelties and extortions which were marking the procedure of many quacks. It may be pointed out once more that the main provision of the Act was to legalize by legislation the professional services of a large body of men who had previously practised dentistry without qualification and no doubt dentists who were registered already viewed with mixed feelings the dilution of their small body—about four thousand—with perhaps ten thousand whose equipment was vouched for by no standardizing examinations.

The regulations were not approved definitely until the end of last January. In the three months which have elapsed since the actual applications received numbered 6,765, which may be analyzed as follows: 4,294 from claims as practitioners during five of the past seven years; 1,551 from members of the incorporated Dental Society; 423 from mechanics; 271 from persons in practice at the time of the passage of the Act but who, like mechanics, have to pass an examination before registration; and 226 from chemists having a substantial practice as dentists at the commencement of the Act. The speed at which the new Register is being made up is shown by the fact that of the 6,765 applications, more than four thousand proved satisfactory, 2,200 of these being persons who had been in practice for five of the past seven years, and 1,400 being members of the Incorporated Dental Society.

The business of the Dental Board is not only to prohibit the practice of dentistry by unregistered persons, but also to see that those who are registered comply with the provisions of the Act. That the Board is alive to its duties as shown by the fact that already it has had before it the names of twenty persons who are alleged to have infringed the regulation dealing with the employment of unqualified assistants. A warning has been issued to registered dentists pointing out that the employment by them of an unqualified assistant in respect of matters requiring professional discretion or skill renders them liable to erasure from the Register; but in regard to this matter there seems to have been much misapprehension.

In order to understand the situation properly attention may be brought to the point that there are two methods in which unqualified assistants may be improperly employed: (1) the opening of a branch practice and the placing of an unqualified employee in its charge; and (2) the employment of the unqualified person on the main premises. A dentist should be adequately qualified from every point of view to do the important work effectively. He should be scientifically as well as mechanically equipped, and it is a wise procedure on the part of the powers that be in Great Britain to cause laws to be enacted which will accomplish this object.

A recreation congress called by the Playground and Recreation Association and Community Service will be held in Atlantic City, October 9 to 12.

Report of Committee on Nursing Education*

THE Committee which presents the following report was first appointed by the Rockefeller Foundation in January, 1919, to conduct a study of "the proper training of public health nurses."

It was, therefore, the pressing need for more, and for better, nurses in the field of public health that first suggested the desirability of such an investigation. It soon became clear, however, that the entire problem of nursing and of nursing education, relating to the care of the sick as well as to the prevention of disease, formed one essential whole and must be so considered if sound conclusions were to be attained. A year later, in February, 1920, the Foundation requested us to broaden the scope of our inquiry to include "a study of general nursing education, with a view to developing a program for further study and for recommendation of further procedure." "We have attempted therefore to survey the entire field occupied by the nurse and other workers of related type; to form a conception of the tasks to be performed and the qualifications necessary for their execution; and on the basis of such a study of function to establish sound minimum educational standards for each type of nursing service for which there appears to be a vital social need.

Since it was the obvious need for more adequate nursing service in the field of public health which brought to a head the demand for a comprehensive study of nursing education—long felt and first voiced by the official organization of nurses—it seems natural to begin with a consideration of this phase of the broader problem.

It is obvious that the public health movement has passed far beyond its earlier objectives of community sanitation and the control of the contact-borne diseases by isolation and the use of sera and vaccines. Many major health problems of the present day, such as the control of infant mortality and tuberculosis, can be solved only through personal hygiene—an alteration in the daily habits of the individual—and through the establishment of new contacts with the public —contacts which shall permit the application of the resources of medical science at a stage in disease when they can produce a maximum effect. Such changes in the daily habits of the people and in their relation to their medical advisors, can be accomplished by but one means—education. In its present phase of emphasis on personal hygiene, the public health movement has thus become during the past two decades preeminently a campaign of popular education.

The Nurse in Public Health

The new educational objectives of the health administrator may be approached to a limited extent by mass methods. The printed page, the public lecture, the exhibit, the cinematograph, the radiogram, help to prepare the ground and to make success easier. The ultimate victory over ignorance is, however, rarely attained in such ways. Direct personal contact with the conditions of the individual life is essential to success in a matter so truly personal as hygiene. We have sought during the past twenty years for a missionary to carry the message of health into each individual home; and in America we have found this messenger of health in the public health nurse. In order to meet generally accepted standards we should have approximately fifty thousand public health nurses to serve the population of the United States—as against eleven thousand now in the field. All public health authorities will probably agree that the need for nurses is the largest outstanding problem before the health administrator of the present day.

In view of this fact, public health authorities, both in this country and abroad, have naturally considered the possibility of finding a short way out of their difficulties by the employment of women trained in some less rigorous fashion than that involved in the education of the nurse. It was therefore to the question of the necessary and desirable equipment of the teacher of hygiene in the home that we first directed our attention. There are at present two distinct types of public health nursing practise in the United States—that in which the nurse confines herself to the teaching of hygiene, and that in which such instructive work is combined with the actual care of the sick. A third type of visiting nursing, in which bedside care is given with no educational service, may be observed in individual instances. It results, however, from temporary limitations rather than considered policy, since practically all visiting nurse associations, in theory at least, stress hygienic education in their official program.

The question whether the public health nurse should or should not also render bedside care has been hotly debated during the past few years. The arguments for purely instructive service rest mainly on two grounds, the administrative difficulties involved in the conduct of private sick nursing by official health agencies and the danger that the urgent demands of sick nursing may lead to the neglect of preventive educational measures which are of more basic and fundamental significance. Both these objections are real and important ones. Yet the observations made in the course of our survey indicate that both may perhaps ultimately be overcome. Several municipal health departments have definitely undertaken to provide organized nursing service for bedside care combined with health teaching, while in other instances instructive nurses, under public auspices, combine a certain amount of emergency service with their fundamentally educational activities. So far as the neglect of instructive work is concerned it results from numerical inadequacy of personnel and can be avoided by a sufficiently large nursing staff.

On the other hand, the plan of instructive nursing divorced from bedside care suffers from defects which if less obvious than those mentioned above are in reality more serious, because they are inherent in the very plan itself and therefore not subject to control. In the first place—the introduction of the instructive but non-nursing field worker creates at once a duplication of effort since there must be a nurse from some other agency employed in the same district to give bedside care. In the second place, the field worker who attempts health education without giving nursing care is by that very fact cut off from the contact which gives the instructive bedside nurse her most important psychological asset. The nurse who approaches a family where sickness exists, and renders direct technical service in mitigating the burden of that sickness, has an overwhelming advantage, then and thereafter, in teaching the lessons of hy-

*The report as published herewith in full is signed by the Committee, as follows: C.-E. A. Winslow, chairman, Mary Beard, Hermann M. Biggs, S. Lillian Clayton, Lewis Conner, David L. Edsall, Livingston Farrand, Annie W. Goodrich, L. Emmett Holt, Julia C. Lathrop, Isabel W. Lowman, M. Adelaide Nutting, C. G. Parnall, Thomas W. Salmon, Winford H. Smith, E. G. Stillman, Lillian D. Wald, William H. Welch, and Helen Wood.

giene. With an adequate number of nurses per unit of population, we believe that the combined service of teaching and nursing will yield the largest results. Nurses employed by state health departments and others whose work is largely stimulative and supervisory in nature may not of course be in position to render direct bedside care.

Nurse Best Health Educator

There are other messengers who may be sent into the field to fulfil other functions. The task of the trained social worker for example is to diagnosticate and repair maladjustments in social relationships, a correlated but quite distinct vocational field. Even public health agencies may employ other field workers of an allied type, such as clinic messengers. It is obvious, however, that where health instruction is combined with bedside care the fully trained nurse is the only possible type of health educator; and such a combination represents the one type of service which it is feasible to supply in rural districts. Even purely instructive work if conducted on the generalized district plan, calls for an ability to detect the early signs of contagious disease, to discern symptoms which suggest tuberculosis, to give counsel as to infant care or the feeding of older children, which can scarcely be attained without a wide training. The relative lack of nursing personnel in Europe has there led to the attempt to train health visitors of the purely instructive type for dealing with special individual problems, such as tuberculosis or child welfare, by training courses much shorter than those required for the preparation of the nurse. Opinion as to the result of such experiments in Europe varies widely; but for conditions as they exist in the United States we are convinced that the teacher of hygiene in the home should be equipped with no less rigorous training than that accorded to the bedside nurse, further supplemented by special studies along the lines of public health and social service.

That an improvement in quality, as well as an increase in the number of public health nurses is fundamental to the complete success of the public health movement, is a point on which we find all competent authorities to be substantially agreed. Miss Goldmark's report of an intensive study of the daily work of 164 public health nurses, representing forty-seven different organizations, gives glimpses of women whose constructive service and compelling personal inspiration seem to touch the highest possibilities of social achievement. Such a nurse establishes herself in the confidence of her community, so that she becomes its trusted advisor and best friend, caring for the sick, securing medical aid, counseling as to hygiene, resolving difficulties of a hundred sorts with the touch of a practised hand.

Nearly half of the nurses observed in our survey were classed as definitely successful in their work and less than one-fourth as definitely unsuccessful—a showing perhaps better than would be made by a random sampling of most professions. Yet it remains true that either from a lack of knowledge of preventive measures or of teaching methods, from failure to effect contact with physicians or with social agencies, a substantial proportion of public health nurses do fail to realize the possibilities of their profession. Administrative policies, overloading, and inadequate supervision, are sometimes at the root of the trouble; yet it is obvious that such a calling as public health nursing demands in the first place a high degree of natural capacity and in the second place a sound and a broad education.

Essential Qualifications

We are convinced, therefore, that the teacher of hygiene in the home should possess in the first place the fundamental education of the nurse and that this should be supplemented by a graduate course in the special problems of public health. The latter point will be discussed in detail in a succeeding paragraph but we believe that the general considerations so far discussed warrant the following conclusion:

Conclusion 1.—That, since constructive health work and health teaching in families is best done by persons: (a) capable of giving general health instruction, as distinguished from instruction in any one specialty, and (b) capable of rendering bedside care at need, the agent responsible for such constructive health work and health teaching in families should have completed the nurses' training. There will of course be need for the employment in addition to the public health nurse of other types of experts such as nutrition workers, social workers, occupational therapists, and the like.

That as soon as may be practicable all agencies, public or private, employing public health nurses should require as a prerequisite for employment the basic hospital training, followed by a post-graduate course, including both class work and field work, in public health nursing.

Before considering the basic demand for nurses to function in the routine care of the sick we must point out that it is by no means only in the field of public health nursing, that the need for women of high natural qualifications and fundamental training is now manifest. The modern hospital and the modern dispensary represent social forces of enormous and growing magnitude. The technical complexity of their operation increases with every passing year; and, aside from the problem of the staff nurses required for the ordinary routine of such institutions, which will be discussed in a succeeding paragraph, there is perhaps no more urgent problem for the hospital administrator than that of obtaining nursing superintendents and supervisors adequate for the performance of their difficult tasks. The development, both of public health nursing and of administrative hospital nursing, involves and demands a corresponding development in nursing education which constitutes another inviting field for women.

The defective preparation and qualifications of many instructors in schools of nursing in both practical and theoretical branches is very marked. Yet in the training school the instructor is often called upon to teach six or eight different subjects, far more than would be demanded even of the teacher in a country high school. It should be noted, however, that the appointment of any full-time instructors is a very recent development and has marked a signal educational advance.

Nursing the Sick

With the development of nursing education which we visualize in the future, and particularly with the growth of University Schools of Nursing, to be discussed in a succeeding paragraph, the field for well-qualified teachers of nursing should prove an increasingly attractive one. We believe we may safely advance as

Conclusion 2.—That the career open to young women of high capacity in public health nursing or in hospital supervision and nursing education is one of the most attractive fields now open, in its promise of professional success and of rewarding public service; and that every effort should be made to attract such young women into this field.

We may pass next to the urgent and fundamental problem of providing nursing care for the sick of the community. Here we find far less

unanimity of sentiment in regard either to the quantitative or the qualitative adequacy of nursing service under existing conditions. An appalling shortage of nurses existed during the war; but conditions have materially changed during the past three years. The census reports show an increase in trained registered nurses, male and female, from 82,327 in 1910 to 149,128 in 1920, a truly phenomenal increase of 83 per cent. Some eleven thousand of these are employed as public health nurses and approximately the same number in hospitals and other institutions, leaving over 120,000 for private duty service, of whom, however, many are not in the active practise of their profession. This 1920 figure gives us a ratio of one trained nurse to seven hundred persons for the country as a whole. The majority of trained nurses are concentrated in the larger cities so that the rural districts in many states are wholly lacking in service of this kind. The evidence is that at present in the cities the supply of trained nurses is adequate to existing demands in normal times. The reason why many persons who need nursing care in hospitals and in the homes of the poor fail to receive it is to be sought in economic factors, rather than in a shortage of nurses.

In regard to the quality of the nursing service available at the present day we find even more radical differences of opinion. Private physicians, frequently express the view that for ordinary nursing, even the graduate of the existing training school is "over-trained," that the service which she renders is too costly, and that a woman with a very brief training in bedside routine would be as satisfactory, or perhaps more satisfactory, than the average registered nurse. As a result of this feeling there have been persistent and vigorous efforts in certain quarters to break down the standards of nursing education which have been laboriously built up during the past twenty years.

Insofar as these efforts would remove the safeguards which guarantee to the patient suffering from acute disease, and to the physician caring for such a patient, the quality of service necessary for safety, we feel that they constitute a real danger to the cause of public health. Nurses, physicians, hospital authorities and legislators, in erecting these safeguards, have been inspired by a just sense of the vital dangers to life which may result from the unskilled nursing of a critical case and of the grave responsibility incurred by both the medical and the nursing professions when such malpractice occurs. We would therefore record our conviction in regard to this point as:

Conclusion 3.—That for the care of persons suffering from serious and acute disease the safety of the patient and the responsibility of the medical and nursing professions demand the maintenance of the standards of educational attainment now generally accepted by the best sentiment of both professions and embodied in the legislation of the more progressive states and that any attempt to lower these standards would be fraught with real danger to the public.

Subsidiary Nursing Service

When we find that certain private physicians, like the public health administrators, demand nurses of a higher quality than those now in the field, while others desire merely "hands for the physician" with a minimum of education below the present standard, it seems probable that there is reason on both sides and that the apparent conflict is due to a difference in the objectives to be met. For the care of acute and serious illness and for public health work it seems certain that we need high natural qualifications and sound technical education; for the care of mild and chronic and convalescent illness it may well be that a different type of capacity and training may be necessary.

It seems clear to the Committee, however, that, if two types of nursing service are desirable, the distinction should be drawn not on economic grounds but according to the type of illness involved. We are even somewhat doubtful as to the possibility of attaining very substantial economies by the introduction of a subsidiary type of private duty nurse. Our survey of the situation does not indicate that the income of the private duty nurse is at present generally an exorbitant one, when we take into account the amount of unemployment—amounting in a typical group of 118 nurses to a week each month during the busy winter season. If this factor be allowed for, the margin between the average annual income of the private duty nurse and that of the domestic servant is not so great as to permit of the existence of an intermediate grade on a salary level very much below that of the present Registered Nurse. The solution of the economic problem which confronts the family of low income must probably be sought along the line of cost distribution through some form of community organization or along the line of group insurance such as that now being experimentally tested in New York City.

In any event, a pneumonia case, a diphtheria case, a grave cardiac case will require the highest grade of nursing obtainable whether it occurs in a palace or a hovel. It is the mild and chronic and convalescent case which offers a field for the partially trained worker, and the exact extent of this field has never yet been fully surveyed. In our own study we have secured careful estimates from 118 graduate nurses which indicate that during a period of three months one quarter of their time was spent on cases which could have been cared for by an attendant of the partially trained type. A somewhat similar estimate was obtained from forty-eight practising physicians, twenty-one believing that trained nurses were unnecessarily employed for less than a quarter of their cases, seventeen placing the figures between half and three-quarters and ten at over three-quarters.

In considering the problem of subsidiary nursing service it must be remembered that we are dealing with no new development. Of the three hundred thousand male and female nurses in the United States in 1920, slightly more than half were of grades below the standard of the graduate nurse. The "practical nurse" the "trained attendant," is an existing fact; and in the opinion of a large group of the medical profession who utilize her services she fills a real place in the complex problem of caring for the sick. If we include with the trained and registered nurses (149,128) the student nurses in hospitals (54,953) and to these add the number of attendants and practical nurses, (151,996) as constituting the entire body of persons occupied in caring for the sick we have altogether one nurse, trained or untrained, to every 294 well persons. This would seem to give an adequate supply if numbers alone are considered, provided a proper distribution could be secured.

On the other hand the dangers in the existence of a loosely-defined and unregulated group of partially trained workers, in the same field with a more highly educated type, constitutes a real and a serious complication. The nursing profession has discharged a fundamental duty to the public in stimulating the development of registration laws which define and limit the practice of that profession and protect the community against fraud and exploitation by

those who collect fees and assume responsibilities to which their qualifications do not entitle them. In addition to the registration of the trained nurse it is essential that the lower grade of nursing service should also be defined and registered; and the states of New York, Missouri, California, Michigan, and Maryland have taken definite steps in enacting legislation toward this end. The name to be selected for the subsidiary group is a difficult problem. As is often the case the root of disagreement lies largely in nomenclature. The title "attendant," embodied in three of the laws mentioned above, is distasteful to those who bear it and tends to discourage the enlistment of those who may desire to enter this field. On the other hand the term "practical nurse" assumes a most unfortunate antithesis between education and practice; and the splendid professional and public service rendered by "the nurse" in war and in peace, entitles her to the protection of her existing professional status. We are inclined to believe that the term "nursing aide" or "nursing attendant" best meets the need for clear differentiation, while providing the subsidiary worker with a suitable name.

With two distinct grades of service available, the individual physician would be responsible for the choice of a trained nurse or a nursing attendant or nursing aide in a given instance. The public can only be safeguarded in these matters by state legislation providing for licensing of nursing registries and requiring explicit statement as to the license qualifications of each nurse or nursing aide furnished. We believe that by this means the maximum increase of nursing service possible under existing economic conditions could be attained; and we would therefore recommend as

Conclusion 4.—That steps should be taken through state legislation for the definition and licensure of a subsidiary grade of nursing service, the subsidiary type of worker to serve under practising physicians in the care of mild and chronic illness and convalescence and possibly to assist under the direction of the trained nurse in certain phases of hospital and visiting nursing.

Our survey of the actual field of nursing service has thus led us to the conclusion that the good of the community demands (a) the recruiting for public health nursing, hospital nursing, and the care of the acutely ill of a larger number of young women and the provision for such women of a sound and effective education; and (b) the development and standardization of a subsidiary nursing service of a different grade for the care of mild and chronic disease. We may next pass to the second part of our problem—a consideration of existing educational facilities for the training of the two types of workers indicated as desirable.

So far as the trained nurse is concerned, whether she is to function in private duty, in public health, or in institutional service, it is clear that her basic professional education must be acquired in the hospital training school. We have therefore devoted a major part of the present investigation to a somewhat detailed study of existing conditions and future possibilities in hospital training.

Hospital Training School

The development of the hospital training school for nurses constitutes a unique chapter in the history of education. In almost all fields of professional life education has begun on a basis of apprentice training. The first law schools and the first medical schools were the outgrowth of the lawyer's and the physician's office. In nearly all other fields than that of nursing, however, even in such relatively new professions as journalism and business and advertising, education has outgrown the apprentice stage and leadership has passed into the hands of independent institutions, organized and endowed for a specifically educational purpose. The training of nurses, on the other hand, is still in the main, actually if not technically, directed by organizations created and maintained for the care of disease, rather than for professional education.

The progress which has been accomplished in nursing education, under such anomalous conditions, is such as to reflect high credit upon both hospital administrators and the leaders of the nursing profession. The hospitals have in many instances been inspired by a broad and constructive vision of training school possibilities; while the devotion with which nursing directors have labored for high standards, often against almost insuperable obstacles, calls for the warmest admiration. Yet the conflict of interests between a policy of hospital administration, which properly aims to care for the sick at a minimum cost, and a policy of nursing education which with equal propriety aims to concentrate a maximum of rewarding training into a minimum time, is a real and vital one.

The fact that a field so tempting as that of modern nursing, with its remarkable possibilities of service in public health, in institutional management and in teaching, fails to attract students in the number and of the quality we should desire, strongly suggests that there is some shortcoming in the established avenues of approach to the nursing profession. The hospitals themselves, depending as they do so largely upon student nurses for their routine operation, have in past years found themselves seriously handicapped by the small number of applicants, and many a superintendent will testify to the fact that the difficulty of securing a high quality of nursing is one of the gravest which he has to meet. The phenomenally rapid growth in the number of hospitals has created within a brief period a demand for a large number of students and the requirements for admission have therefore been kept at a very low level, thus resulting in a reduction in the proportion of well-educated applicants. For the good of the hospital, as well as for that of the nursing profession and of the public at large, a careful and dispassionate appraisal of the adequacy of the present day training school would seem to be urgently desirable.

Training Schools Studied

An extensive survey of the vast field of hospital training schools (there are over 1,800 such schools in the United States) was obviously beyond the possible resources of our committee. It was therefore decided to select a small group of schools, of reasonably typical character, for intensive study. Twenty-three such schools were finally chosen, representing large and small, public and private, general and special hospitals, in various sections of the United States. These schools were undoubtedly well above the median grade and their average may, we believe, be taken as fairly representative of the best current practice in nursing education. Each school was studied in detail by two types of investigators, one a practical expert in nursing education and the other an experienced educator from outside the nursing field. By this means we aimed, on the one hand to secure competent criticism of nursing procedures, and on the other a broad viewpoint of general educational standards. The detailed results of this investigation, as presented in Miss Goldmark's report will, we believe, prove highly enlightening to the student of this problem.

The training of the nurse involves

a certain basic knowledge of the fundamental chemical and biological sciences, theoretical instruction in the principles of nursing and above all, supervised practical training in actual nursing procedures. In all three phases of this work Miss Goldmark's report reveals conspicuous successes and equally conspicuous failures; and the remarkable thing is that successes and failures so often appear side by side in the same institution.

Thus, we may find in a training school with a good ward service that the fundamental science courses fail because of wholly inadequate laboratory equipment. In another school, the theoretical instructor may show a hopeless lack of teaching ability (as in the case of class presentation which consisted in the dictation of questions and answers from a prehistoric notebook); or she may be so handicapped by other duties as to leave no time for the proper conduct of her classes. Lectures by physicians may be informative and inspiring in one department of a hospital, irregular in delivery, careless, and dull in content in another. Ward assignments are in many cases largely dictated by the need for hospital service rather than by the educational requirements of the students. This is clearly evidenced by the astonishing irregularity of the time spent on different services by individual students and by the marked deviation between all the time assignments actually performed and those scheduled in the official program of the course. Thus in one school where seven and a half months were assigned to surgical service the members of a single class had actually worked on this service for from seven to thirteen and three-quarter months. Of the twenty-three schools surveyed by us one made no adequate provision for obstetrical service, while five gave no training in pediatrics, seven, no experience in communicable disease, and eighteen, none in mental disease. In view of the difficulties in making affiliations in some of these subjects, notably in communicable and mental disease, some of these omissions are scarcely to be wondered at.

The supervision of work on the wards was in certain instances notably inadequate. In only a few brilliantly exceptional cases was the ward work purposefully correlated with theoretical instruction. The lack of an intelligently planned progressive training was obvious in a large number of the hospitals studied, first year students often being found in positions of responsibility for which they were wholly unprepared, while seniors in another ward were repeating an educationally idle and profitless routine. Most striking of all, was the factor of time wasted in procedures, essential to the conduct of the hospital, but of no educational value to the student concerned. Hours and days spent in performing the work of a ward maid, in putting away linen, in sterilizing apparatus, in mending rubber gloves, in running errands, long after any important technique involved had become second nature, accounted in one typical hospital where this problem was specially studied for a clear wastage of between one-fourth and one-fifth of the student's working day.

The total amount of time assigned to ward service under the conditions which obtain in many hospitals is, in itself, a fairly complete obstacle to educational achievement. Our selected group of hospitals, surely in this respect far above the general average, shows a median day of 8.5 hours on ward duty alone, and unproductive night duty is the rule rather than the exception. Crowded and unattractive living conditions tend, in certain hospitals, to impair the morale of the student body and an atmosphere of autocratic discipline frequently prevents the development of a psychological atmosphere favorable to effective cooperative effort.

The foregoing paragraphs present, we are aware, a somewhat gloomy picture. In presenting them, we would emphasize two points which are of major importance. In the first place, such shortcomings as have been pointed out are not fairly chargeable to deliberate neglect on the part of hospital authorities or nursing superintendents. In so far as they exist, they are due to the inherent difficulty of adjusting the conflicting claims of hospital management and nursing education, under a system in which nursing education is provided with no independent financial endowments for its specific ends. The difficulties involved in the task of resolving this conflict are perhaps illustrated by the fact that out of 144 registered training schools in New York State, 60 changed superintendents during a single recent year.

In the second place it is encouraging to note, by reference to Miss Goldmark's report, that every one of the shortcomings in hospital training discussed above has been corrected, with substantially complete success, in one or more of the training schools studied by our investigators. The difficulties are not insuperable. Each of them has been overcome in some schools and most of them in some of the best schools. Training schools exist today in which the student receives a sound and an inspiring education, with a minimum of sacrifice to the exigencies of hospital administration. Yet such schools are still the exception; and we are convinced that the progress we desire can come only through a frank facing of the truth. The following statement is, we believe, thoroughly justified by such facts as we have been able to obtain:

Conclusion 5.—That, while training schools for nurses have made remarkable progress, and while the best schools of today in many respects reach a high level of educational attainment, the average hospital training school is not organized on such a basis as to conform to the standards accepted in other educational fields; that the instruction in such schools is frequently casual and uncorrelated; that the educational needs and the health and strength of students are frequently sacrificed to practical hospital exigencies; that such shortcomings are primarily due to the lack of independent endowments for nursing education; that existing educational facilities are on the whole in the majority of schools inadequate for the preparation of the high grade of nurses required for the care of serious illness, and for service in the fields of public health nursing and nursing education, and that one of the chief reasons for the lack of sufficient recruits, of a high type, to meet such needs lies precisely in the fact that the average hospital training school does not offer a sufficiently attractive avenue of entrance to this field.

Recommendations Made

Recommendations for the improvement of the hospital training school are therefore made on the basis of these conditions. Miss Goldmark's study has not stopped short with a revelation of the defects which are commonly found in the conduct of nursing education. It makes clear that only the coordination and standardization of the best existing practice is necessary in order to place nursing education on the plane where it belongs.

In the first place we believe that a training school which aims to educate nurses capable of caring for acute disease or of going on into public health nursing or supervisory and teaching positions must require for entrance the completion of a High School course or its equivalent. Nearly one-third of all the training

schools in the United States now make this requirement and with 150,000 girls graduating from High Schools every year it should be possible for well-organized courses to attract an ample number of candidates.

The course should begin with a preliminary term of four months' training in the basic sciences and in elementary nursing procedures with appropriate ward practice but without regular service, as outlined in Miss Goldmark's report. The necessary teaching personnel and laboratory equipment for the former may in many instances be secured by the smaller hospitals through the establishment of a central training course or by cooperation with High Schools, Normal Schools, or Junior Colleges.

There should then follow a period of twenty-four months (including two months for vacation) devoted to a carefully graded and progressive course in the theory and practice of nursing, with lectures and ward practice so correlated as to facilitate intelligent case study and with the elimination of routine duties of no educational value. Hospital and dispensary services in medicine, surgery, pediatrics, obstetrics, communicable diseases and mental diseases should be provided through appropriate affiliation. Teachers and equipment should be of such a grade as would be acceptable in a reputable college or normal school.

We regard it as fundamental that the working day for the student nurse, including ward work and classroom periods, should not exceed eight hours. The working week should not exceed forty-eight hours and preferably forty-four hours. Training School experience, as well as a comparison with that accumulated in other educational fields, makes it clear that a longer period of scheduled work for the student is incompatible, either with educational attainment or with the maintenance of health.

By such an organization of the course of study, and particularly by the elimination of unrewarding routine service, we are convinced that the period of training may be safely shortened from the present standard of three years to twenty-eight months. Such a saving would mean an increase of over 20 per cent in the potential output of the training school through the saving of time alone. The shortening of the course would, in itself, prove an attraction to the prospective student; but the main consideration to be kept in view is that the shorter course projected would not imply a lowering but a raising of educational standards. Miss Goldmark's analysis of the situation makes it clear that the intensively planned course of 28 months would involve no substantial sacrifice in a single service as compared with the actual median practice of the present day and would supply other services now almost universally neglected. It is the experience in every other field of education that the way to attract students is to raise standards, not to lower them. In medicine, in law, in engineering, in teaching, the schools which raise requirements are the ones from which students must be turned away; and even in nursing the success of the better schools furnishes convincing testimony to the same basic principle. It is the higher standing of the course here outlined quite as much as its lessened length which we are confident would insure an increase in the number of students, as well as an improvement in their quality.

Post-Graduate Education

There are, we believe, two fundamental essentials to the success of a training school planned on the suggested lines. It must first of all be directed by a board or a committee, organized more or less independently for the primary purposes of education. The interests of hospital management and of educational policy must necessarily at times conflict and unless the educational viewpoint is competently represented the training school will infallibly suffer in the end. In the second place, it is fundamental to the success of nursing education that adequate funds should be available for the educational expenses of the school itself, and for the replacement of student nurses by graduate nurses and hospital help in the execution of routine duties of a non-educational character. A satisfactory relationship between school and hospital demands careful cost-accounting and a clear analysis of the money value of services rendered by the school to the pupil and the hospital, by the pupil to the hospital, and by the hospital to the pupil and the school. The cost of adequate education must in any case be a paramount consideration, to which we shall return in a succeeding paragraph. Assuming its essential importance, the following conclusion seems to be justified:

Conclusion 6.—That, with the necessary financial support, and under a separate board or training-school committee, organized primarily for educational purposes, it is possible with completion of a high school course or its equivalent as a prerequisite, to reduce the fundamental period of hospital training to 28 months and at the same time, by eliminating unessential, non-educational routine, and adopting the principles laid down in Miss Goldmark's report to organize the course along intensive and coordinated lines with such modifications as may be necessary for practical application; and that courses of this standard would be reasonably certain to attract students of high quality in increasing numbers.

The course of twenty-eight months discussed above would furnish the complete education for a student desiring to practise as a bedside nurse in private duty or in hospitals and other institutions; and its completion should entitle her to the Diploma in Nursing and to state registration. For the nurse who desires to specialize along either of the more advanced lines, of public health nursing, or hospital supervision and nursing education, a further period of post-graduate training is obviously desirable.

Teachers College of Columbia University has played the part of pioneer in preparing graduate nurses for hospital supervision and nursing education and certain of the newer University Schools of Nursing are already offering attractive courses along the same line. The development of graduate courses in public health nursing has made even more notable progress. The first organized course of this type was offered in Boston in 1906 and by 1920 there were twenty such courses in operation, under the auspices of Universities, Public Health Nursing Associations or Schools of Social Work.

The activities of sixteen of these schools of public health nursing have been studied in the course of our investigation and the results achieved in this new field are in general deserving of high praise. The course is apparently in process of standardization at a length of about eight months, four devoted to theoretical instruction in public health, public health nursing, educational psychology and social problems, and four to supervised field work with a public health nursing organization. The courses at present offered are in many instances tentative and lacking in assured financial status. With the development of the University School of Nursing, (to be discussed in succeeding paragraphs) they may be expected to fall within its sphere of influence and to develop an increasing stability and usefulness.

Conclusion 7.—Superintendents, supervisors, instructors, and public

health nurses should in all cases receive special additional training beyond the basic nursing course.

For advanced training, the development of the University School of Nursing has been perhaps the most notable feature in the progress of nursing education during the past ten years. As long ago as 1899 Teachers College of Columbia University admitted properly qualified nurses to its junior class, thus giving two years of college credit for the three years of nursing training. Since 1916, no less than thirteen different colleges and universities have provided combined courses, through which students may acquire both a nurse's training and a college degree.

University School of Nursing

The combined course, in such schools for example, involves two years of ordinary college work including besides work of a liberal nature certain of the fundamental sciences basic in nursing education. Then follow two years of intensive training in the hospital and finally, a fifth year of post-graduate education in one of the higher specialties of nursing, public health, institutional supervision, or nursing education. At the close of training, the student receives a diploma in nursing and the bachelor's degree in nursing or in science.

This type of School of Nursing should in the judgment of the Committee be a separate and independent department of the University, cognate in rank and organization with the School of Medicine or the School of Law. It should have direct responsibility for all instruction given during the years of hospital training and the post-graduate nursing year.

A definite affiliation with one or more hospitals must in any case be established, along the line of those agreements now in force between medical schools and hospitals. The school supplies student nursing service and assumes a definite responsibility for a larger or smaller share of ward supervision and perhaps of graduate service. The hospital, on the other hand, provides maintenance for the nursing staff and conforms to the standards held by the University to be essential for the realization of its educational ideals. A University Hospital will of course offer the most promising field for a University School of Nursing; but in default of such an institution there seems no reason why a University School should not establish satisfactory working agreements with various adjacent hospitals, provided only that the maintenance of adequate standards in the practice field remains in its own hands.

If its present practical function be clearly understood the University School of Nursing possesses unique advantages in respect to both of the essentials for success in nursing education, to which reference has been made in a preceding paragraph. It possesses the power of independent educational leadership and is grounded on the solid foundations of educational ideals, to a degree which a training-school committee, ultimately responsible to a board of hospital trustees, can seldom hope to realize; and it is likely to obtain financial resources of a more nearly adequate extent. Furthermore, through its university contacts the University School of Nursing has unique opportunities to attract students of the type so greatly needed for the fulfilment of the higher tasks in the nursing of the future.

It should be made quite clear that the Committee does not recommend that nursing schools in general should work toward the establishment of courses of a character that a University would accept for a degree. We realize that the numerical proportion of the nursing profession to be contributed by the University School will perhaps always be a relatively small one. Yet we believe that the importance of this portion of the educational structure would be difficult to overestimate. The value that we see at present in the University Schools is that they will furnish a body of leaders who have the fundamental training essential in administrators, teachers, and the like. One of the greatest, if not the greatest of the reasons for the imperfections in the present training of private duty nurses is that great numbers of schools have developed without any coincident development of adequate numbers of persons properly trained to guide the pupils during their course. Unless well taught they cannot be well trained. The University School of Nursing should be the keystone of the entire arch. It will not only train leaders and develop and standardize procedures for all other schools. It will, by its permeating influence, give inspiration and balance to the movement as a whole and gradually but steadily improve the efficiency of every institution for the training of nurses of whatever type. We would therefore urge as

Conclusion 8.—That the development and strengthening of university schools of nursing of a high grade for the training of leaders is of fundamental importance in the furtherance of nursing education.

We have pointed out in a preceding section of this report that there appears to be a real place for nursing service of a subsidiary type, to be used in the institution and in the home, for the routine care of patients suffering from disease of a mild or chronic type or in convalescence. We have also pointed out that this subsidiary service is an existing fact, whether we like it or not.

Existing facilities for the training of the subsidiary worker are today of the most limited type. It is obvious that courses in home nursing of a few weeks duration, such as those conducted under the auspices of the American Red Cross, while most useful in disseminating the sort of knowledge which all girls and women should possess, in no way suffice as preparation for the practice of a profession. When they are advertised as adequate for this latter end, such courses may do far more harm than good—as evidenced by the fact that "graduates" of such courses after forty-eight hours of instruction have practiced as qualified nurses and received $5 a day for their services.

Training of Subsidiary Workers

Courses for the training of nursing aides offered by the Household Nursing Association of Boston and by local Young Women's Christian Associations in various parts of the country and those stimulated by the Bureau for the Home Care of the Sick under the Thomas Thompson Trust are on a wholly different basis. The number of graduates from such courses is, however, small and their control after graduation loose and unsatisfactory. Since the existence of the subsidiary nursing group is a concrete fact, and in view of the valuable results to be derived from the service of this group in a definitely restricted field, it seems obvious that specific provision should be made for the training of workers of this type.

The field for the training of nursing aides would seem to be an ample one. The special hospital, not served by affiliation with a school of nursing, and the small general hospital whose facilities are inadequate for the maintenance of a nursing school of standard grade might be considered as training grounds. In the large general hospital whose opportunities are not fully utilized by student nurses there is no valid objection to the training of the subsidiary group, provided that it is conducted in separate and distinct wards so that the sac-

rifice of the interests of either of the two groups of pupils may be avoided. The requirements for entrance should be a grammar school course or its equivalent and the period of training eight or nine months. Suggestions of great value in regard to the safeguarding of such a course for "attendants" will be found in a recent report issued by the Board of Regents of the University of the State of New York.

It is essential in providing for this new type of education that hospital patients should be protected from malpractice and students from exploitation by an adequate graduate nursing service for the care of acute illness and for supervision of the students. Again, therefore, we must assume a reasonable financial support before this, or any other, educational enterprise can be honestly undertaken. Furthermore, we believe that a useful development in the training of nursing aides can only be expected when the standards of the schools for such aides and their activities after graduation are controlled by a properly safeguarded system of state legislation, such as now exists in Missouri.* With these assumptions we would recommend as

Conclusion 9.—That when the licensure of a subsidiary grade of nursing service is provided for, the establishment of training courses in preparation for such service is highly desirable; that such courses should be conducted in special hospitals, in small unaffiliated general hospitals or in separate sections of hospitals where nurses are also trained; provided the standards of such schools be approved by the same educational board which governs nursing training schools; and that the course should be of eight or nine months duration.

The Financial Problem

We believe that the educational plan which has been outlined above is, according to existing information, necessary and sufficient for the solution of the problems involved in securing an adequate nursing service of all essential types. The school for nursing aides would provide the subsidiary worker needed for the care of the mild and chronic and convalescent case. The hospital training school, with adequate funds and an independent educational organization, would attract more candidates and better candidates and would prepare them adequately for the nursing of acute disease. The University School of Nursing would prepare the leaders in public health nursing, in hospital supervision and nursing education and would inspire and standardize the entire movement. Progress must be made gradually, of course, building up for the future, step by step, upon the basis of existing facilities.

It is clear, however, that the attainment of these ends requires financial support, and requires it at all points along the line. The training of nursing aides will cost money; the training of nurses will cost more money; the University School will require endowment on a reasonably generous scale. The hospital, in its operation of the training school has for generations been trying to make bricks without straw, in the upbuilding of an educational system on an apprentice basis and without independent educational resources. It has made every possible effort—except the effort to secure educational endowment; it is time that the hospital should be relieved from the dilemma of exploiting student nurses on the one hand, or of diverting funds given for the care of the sick on the other, by the provision of endowments specifically devoted to the purposes of education.

We are well aware that many of those who have taken counsel with us in regard to this matter have cherished the hope that the Committee would find some magic pathway out of the maze of nursing education; but such hopes are vain. There is no short cut to the end which we all have in view. The establishment of a sound educational policy is the one essential to attracting students in quantity and of quality; and a sound educational policy requires specific financial support. If the community needs and desires the service of competent nurses for the care of the sick and the prosecution of the campaign of public health, it must pay for their education, as it pays for every other conceivable kind of education—either through taxes or through voluntary contributions or through the generosity of its great philanthropic foundations. No broadly conceived and systematic effort to obtain such financial support for nursing education has ever yet been made; when it is made we are convinced that it will not fail. In institutions where nursing education has been even partially endowed, as in the first school of nursing at St. Thomas' Hospital, London, and the Department of Nursing and Health at Teachers' College, New York, substantial achievements in the better education of nurses have been rendered possible.

It is obvious that the plan recommended for improvement of the education of nurses cannot be adequately put into effect in any hospital training school without additional funds for this purpose. The strategic position which the University Schools of Nursing will occupy in regard to the whole movement indicates their development as of special importance. An adequate endowment for a group of such University schools would establish centers of influence which could safely be trusted to exert a profound influence upon nursing education. We, therefore, urge as the final conclusion from our study of this problem:

Conclusion 10.—That the development of nursing service adequate for the care of the sick and for the conduct of the modern public health campaign demands as an absolute prerequisite the securing of funds for the endowment of nursing education of all types; and that it is of primary importance, in this connection, to provide reasonably generous endowment for University Schools of Nursing.

Vocational Guidance in Philadelphia

A report of the White-Williams Foundation, Philadelphia, covering the work of the five years since the organization entered upon its present program of vocational guidance has recently been published. The School Counseling department has had counselors in 14 different schools since the beginning of this work, and has studied in all 3,812 children. Scholarships have been provided for 142 pupils, 69 of them during 1921. Nearly 90 teachers and principals applied for the 25 scholarships offered by the Foundation in the fall of 1921 for the special course in social work in the schools given at the Pennsylvania School for Social Service, and so many inquiries came from others that two other courses have been organized for the second semester.

The appointment of Dr. Ethel M. Watters of San Francisco as consultant in the administration of the Sheppard-Towner Maternity Act has been announced by the U. S. Department of Labor through the Children's Bureau. Dr. Watters has been since 1919 Director of Child Hygiene in the California State Board of Health.

*The Missouri act is unusually effective in providing that "no person shall practice as a nurse for hire or engage in the care of the sick as an attendant for hire unless licensed by the Board as hereinafter provided."

Digest of Sanitary and Hygienic Advance

THE activities of the laboratory ever have a direct bearing upon the practical work of the health official, but never before in the history of health work have so many problems of far reaching significance occupied investigators as at the present time. The field is wide. Each of the sciences must contribute its quota to the working knowledge of the public health worker.

Pulverized Small Pox Vaccine for Tropical Use

One of the greatest deterrants to successful vaccination in the tropics is the difficulty of maintaining the potency of the vaccine in situations remote from ice. Various expedients have been resorted to, of which the best has been the thermos bottle. The method is to fill the bottle about half full of finely cracked ice, then a layer of capillary tubes of vaccine matter, tied in bundles of forty each, then a final layer of cracked ice. When vaccinations are to be performed, the metal cap of the bottle is almost filled with ice water containing a few pieces of ice and a bundle of vaccine tubes, which are removed from the ice water one by one as needed and only immediately before application to the scarified area. Even with the greatest care, it frequently happens that the number of positive results is not greater than 10 per cent or 15 per cent. The Director of Health of the Philippine Islands, Dr. Vicente de Jesús, in his report for the calendar year 1920 expresses the belief that these difficulties have been overcome by the use of the pulverized smallpox vaccine prepared by the Philippine Bureau of Science. Since this statement grows out of the observations of nearly fourteen million persons since 1918, it should carry great weight. The dried vaccine is put in one rubber-stoppered amber glass vial and the glycerin for making the suspension in another, fifty units in each vial. The vaccine must be kept in a cool, dark place and must not be exposed to direct sunlight or artificial heat if its potency is to be maintained. To use, the stoppers are drawn from both vials; the glycerin is poured into the vial containing the pulverized vaccine; that vial is re-stoppered and shaken until the powder is completely emulsified. Vaccinations should follow immediately. It is claimed that by this method, positive results are obtained in 70 per cent of vaccinations.

TUBERCULOSIS is a dirge whose notes arise from the cradle.

The Prophylaxis of Syphilis

Levadaditi and Navarro-Martin presented to the French Academy of Sciences, at its session of March 21, 1922, (*Par. Med.* XII, No. 14, p. 304, Ap. 8-22) a note on the prevention and cure of syphilis by the use of acetyl derivative of oxyaminophenylarsinique, which is a soda salt. This method of prophylaxis depends upon the employment of an efficient spirillicide which, from a practical point of view, is more simple of application than by the use locally of ointments or preventive injections. The attempt to achieve results by the administration of bismuth salts by mouth proved negative or mediocre. The authors tested this method with the new salt of arsenic mentioned above. The drug administered by the buccal route produced a rapid and definite cure of the lesions of syphilis in rabbits and monkeys, the Trypanosomes disappearing on the second or third day and not returning. Experiments were then made on man, sixteen grams being administered to one patient and fourteen grams to another, at the rate of from one to two grams daily, taken in a single dose, fasting. The Trypanosomes disappeared rapidly from the lesions. After a number of confirmatory experiments, a volunteer, a young man of twenty-five years, allowed himself to be inoculated with the virus of syphilis into scarifications in each arm. At the same time a macacus monkey was inoculated with some of the same material as a control. Two hours and sixteen hours respectively after the inoculation, the young man was given two grams of the new arsenic salt by mouth but the monkey was given none of the drug. Ten days later, the monkey presented typical syphilitic lesions. The young man was observed for forty-three days but developed no local reaction or general signs of syphilis and his Bordet-Wassermann reaction remained continuously negative. The authors conclude that this new salt is a drug which when administered by mouth prevents infection with syphilis and produces rapid cicatrization of the manifestations of syphilis in man and animals. It will of course require time to decide if this new therapeutic agent will always prevent the disease and whether its cures are definite and permanent.

Method of Fly-Catching

The Health Department of the city of Panama, R.P., for more than two years has been making its own sticky fly solution. This is made by heating together five quarts of castor oil with twenty pounds of clear resin, with stirring, until a clear solution is formed. This may be spread on sheets of paper or long spirals of paper. Neither of these methods is neat. The pieces of paper blow about and other things besides flies get stuck on them. Furthermore, it is not easy to place them where the fly most commonly alights, that is on projections nearer the ceiling. It was found that wires coated with the sticky solution make good fly traps. For this purpose baling wire is bound into hanks the upper end of which is bent into a hook. Baling wire is used because it is a suitable size and discarded pieces may almost always be secured free around any stable using baled hay. As soon as the hank of wire has become covered with adherent flies, it is cleaned by washing with boiling water and lye, after which it is re-dipped. For catching flies on tables, it was found that a spiral spring, such as is commonly used in automobile or other upholstery, serves admirably when dipped in this solution. The base of the spring is fixed to a square piece of board or metal. Such springs may be secured free from discarded upholstery. The method is simple, inexpensive and efficacious (Fig. 1).

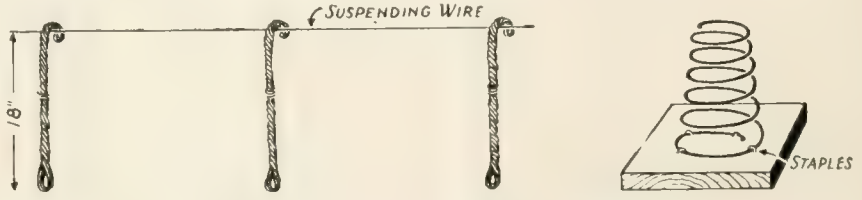


Fig. 1. Simple and practical method of fly catching.

Hours of Sleep Requisite for Children

Anyone who has inspected very many school children must have been struck with the fact that while many were alert and wide-awake others were heavy eyed and dopey. Almost uniformly, though, the children claimed to have gone to bed early. As a matter of fact, however, it is entirely probable that the average child does not get enough sleep and as the age of the child progresses, the loss of sleep increases in proportion. Authorities vary considerably in their estimates of the amount of sleep which should be taken by the average healthy child of a given age. Certainly if the table given by Dr. Clement Dukes in *School Hygiene*, November, 1921, be taken as a standard, it is easy to believe that most children are underslept.

Age	Hours	Age	Hours
At birth	23	8 years	12
1 year	20	9 years	11½
2 years	18	10 years	11
3 years	16	13 years	11
4 years	15	15 years	10½
5 years	14	17 years	10½
6 years	13	19 years	9½
7 years	12½	All other ages	9

Gross (*Lancet*, CCII, 5148, Ap. 29-22, 836 et seq) who has made a careful study of the sleep of elementary school children arrives at the conclusion that only a very small percentage of elementary school children attain the hours of sleep recommended by Dr. Dukes, the great bulk falling considerably below and a considerable number far below his standard. He states that the percentage of children showing fatigue signs and also the percentage which have to be wakened in the morning increases with the age of the children because of the gradual and premature freeing the child from parental control. The ideal corrective procedure seems to be the teaching of parents that children require very considerable amounts of sleep in order to develop properly.

Advice for the Research Worker

The late Sir Patrick Manson's advice to those entering the field of research: "Never refuse to see what you do not want to see, or which might go against your most cherished hypotheses, or against the views of authorities. These are just the clues to follow up, as is always, and emphatically so, the thing you have never seen or heard of before. The thing you cannot get a pigeon-hole for is the finger-point showing the way to discovery." An illuminated copy of this should hang on the wall of every research laboratory.

Chloropicrin as Ship Fumigant

Sulphur dioxid is the aeon-old standby in ship fumigation. It is a fairly good agent of deratization; accidents to human beings very seldom follow its use; it is relatively cheap; it requires very little apparatus to use; highly skilled labor is not absolutely necessary in its application. On the other hand, its diffusibility is not good; its weight sometimes makes post fumigation aëration somewhat slow; it is destructive to colors, and tarnishes, or even corrodes certain metals.

Carbon monoxid is of considerable value; it is fairly efficacious for killing small mammals; it is fairly cheap; it is not destructive; there is no danger from fire during its use, as with sulphur dioxid; it is light and aëration is easy following its use. A special apparatus and skilled operatives are required for its use; its diffusibility is not uniform and is uncertain; in the presence of a humid atmosphere it is apt to cause sweating of painted surfaces; it is odorless, tasteless, non-irritant and invisible and has therefore the great hazard that someone may walk into it and be killed.

Hydrocyanic acid gas is an extremely valuable fumigant; it is highly lethal for mammals, many insects and all birds; it is highly diffusible, relatively cheap, and not destructive. Skilled and dependable labor is required for its use; aëration must be perfect before the fumigated compartments may be entered. It is a useful but highly dangerous weapon in the armentarium of the sanitarian.

An attempt was made by Seguy F. (*Arch. de Med. et de Pharm.* Nav. 1921, III, No. 6, p. 509 *et seq.*) to utilize chloropicrin in the proportion of 5 cc. per cubic meter as a deratizing fumigant for ships. The chemical formula of chloropicrin is CCl_3NO_2 and is made by the action of calcium hypochlorite on calcium picrate. It boils at 111.9° C., freezes at —.602° C. and has a density of 1.648 at 25°C. It is an intense lachrymant. For a ship of four thousand cubic meters capacity —about 1,500 registry tons—twenty liters at a total cost of 280 francs—about $50 gold—were required. The agent killed all rats and bugs, but twenty-four hours aëration was necessary. The difficulty of removal of the gas by ordinary ventilation methods, interposes an almost insuperable obstacle by reason of the time element involved. This gas is relatively safe, however, because no one will walk very far into it.

Production of Chenopodium Oil in the Dutch East Indies

The annual report of the medical services in the Dutch East Indies (excerpted by the Sanitary Supplement of the *Tropical Diseases Bulletin* of March 30, 1922), notes the encouragement of the cultivation of *Chenopodium ambrosoides* by private agriculturalists, the chenopodiul shrub being planted in various rubber gardens between the hevea. As a result, an oil of efficacy equal to that of the imported article is produced and sold 10 per cent below the usual market price. This same thing might easily be done on the banana, coffee, and cacao plantations of Central and South America.

Squill Effective as a Rat Poison

Many observers abroad are of the opinion that fluid extract of squills is a most efficient rat poison. It is claimed that it has thrice the toxic effect of barium carbonate and is relatively harmless to animals and birds. It is cheap and, since it creates great thirst, the poisoned rodents die in the open. It is prepared by macerating freshly purchased bulbs of *Urginea maritima* with alcohol 1:5 for six days and then expressed through a cloth. The baits are prepared by soaking small pieces of bread in the fluid extract. Poisoned animals are dead by the second day.

Rabies Decreasing in France

Rabies, which increased very appreciably in France during the War, is reported to be on the decrease, in spite of the fact that new foci occasionally develop. The control of the disease has resulted from the usual measures for the control of dogs, particularly stray dogs. The continuance of the disease is believed to be due to the failure on the part of owners of dogs to report the infection in their animals (*Gaz. d. Hôp.* No. 20, Mar. 11-22, p 306).

Building Malaria Out of Existence

In breaking the chain of continuance in malaria, it is important to prevent the creation of human chronic carriers. To this end it has been suggested (*van Lankhuijzen, Mededel. v. d. Burgerlik Geneesk. Dienst in Nederl. Indie, 1920, pt. 10, pp 50-75- excerpted Sanit. Sup. Trop. Dis. Bul., Mar. 30-22, pp 1-8*) that all houses be registered and numbered and that the building of houses for human occupancy without license be prohibited, applicant to be advised regarding site and methods of mosquito exclusion.

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(Continuing MODERN MEDICINE.)

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A Constructive Policy of Nursing and Nursing Education

THE presentation of the report of the Committee on Nursing Education appointed three years ago by the Rockefeller Foundation is an event of notable importance in the history of nursing and of public health. The report is based on an exhaustive survey conducted by Miss Josephine Goldmark which has dealt on the one hand with the actual work of the nurse in public health and in the care of the sick and on the other hand with the facilities provided for her training. The result is a broad and comprehensive plan which must demand the serious consideration of all health workers—both for its own sake and because of the fact that it is sponsored by such leaders in the medical and public health fields as Biggs, Edsall, Welch, Holt, Farrand, and Winslow, and by such prominent nurses as Miss Wald, Miss Nutting, and Miss Goodrich.

The report gives little encouragement to the extravagant claims sometimes made as to the present inadequacy of nursing service but it does recognize that more, and particularly better nurses of various types are needed and it recognizes at least three such types as fundamentally distinct in their educational requirements.

It is first recommended that the partially trained nurse, of whom there are now as many in actual practice as there are fully trained nurses, should be recognized and standardized and licensed under the title of "nursing aide" for the care of mild and chronic illness and of convalescence; and that courses of nine months duration should be offered for the preparation of workers of this type. In the second place it is recommended that the basic course for the trained nurse, who is to function in the care of the acutely ill, should be shortened from three years to two years and four months, but with standards as to the solidarity and intensiveness of training which will mean no lowering but rather raising of actual educational achievement. Finally, for public health nursing and hospital supervision and nursing education a graduate course of at least eight months more will be required.

Perhaps the most important point emphasized by the Committee is the need for endowment for nursing education. It is frankly recognized that the vast majority of nurses' training schools are today quite inadequate for the fulfilment of the task which is placed upon them and this must necessarily be the case so long as nursing education is carried on without endowments of its own and as an adjunct to hospital administration. Independent educational management and specific educational endowment are essential if the pupils of training schools are to receive an intensive and purposeful education freed from the burden of repetitive and unrewarding routine. There is probably no field of community activity in which educational endowments are so much needed as in connection with nursing education and it is well that this problem has been so clearly and emphatically stated by a group of men and women of authoritative standing.

It is believed by the Committee that the highest type of public health nursing is that in which bedside care and instructive work is combined and for this field women of high natural qualifications are greatly needed. Hospital teaching and supervision is another career of the highest attractiveness for young women of vision and ability and it may be hoped that if the necessary funds are obtained and the nurses' training school is placed on an adequate basis young women in increasing numbers and of increasingly high calibre will be drawn into a profession which today offers unique opportunities for constructive social service.

Chicago Community Trust Makes Study of Prenatal Care

THE Chicago Community Trust has presented to the public a valuable study on "Prenatal Care in Chicago." The Chicago Community Trust is a foundation whose business is to receive funds in trust for the benefit of the community and to aid those who are seeking an outlet for benevolences. It is interested, therefore, in a

comprehensive plan so that it may properly advise donors as to the proper field for social and civic work. Naturally the interest in child welfare prompts many people to give to children's charities. Without a plan such giving becomes indiscriminate.

The Community Trust undertook to provide means for the guidance of givers in the field of infant welfare and has succeeded through the report just published in setting forth a "Chicago plan." Elsewhere in this issue is set forth a complete summary of this report. Specifically it recommends that prenatal care be extended to all prospective mothers whom at present it does not reach and that the prenatal care afforded by Chicago's agencies and institutions be coordinated and standardized through a permanent prenatal or maternity council, to consist of obstetricians, pediatricians, social service workers, nurses, and other public spirited citizens.

A minimum standard for prenatal work has been drafted by a local committee representing physicians and nurses and is presented for discussion and possible adoption by all persons or groups concerned in the field.

Such constructive work in health organization is very helpful, and it is to be hoped that similar inquiries may provide the basis for plans in other fields of health work.

Hunger Phenomena—Mental and Physical

SCIENTIFIC data are not always obtained from the laboratory. Some of the finest observations in botany, zoölogy, and in medicine have been made by men who did not work in laboratories. Occasionally a literary description of a disease, physical condition, or state of mind is just as accurate as one written in so-called scientific language. A case in point is the book "Hunger" by Knut Hamson, the recipient of the Nobel prize.

Hamson has described in this book the state of his body and mind while he was in the throes of hunger. There are many records of fasting people, some extending over periods as long as sixty days, but we dare say that none of them are as clear cut, as vivid, as true as the description by Hamson. In "Hunger" one has an exact description of the hungry man's feelings. Hamson takes hunger from the realm of the body and projects it into the realm of the mind as well. He shows the mental changes a person undergoes during an extended period of hunger, the physical reaction, the philosophical moods, the joy the sorrow, the accompanying despondency. Even when he reaches the far heights of poetry in the description, one nevertheless considers it a true picture of his state of mind. Of course, not every hungry person lives through the same moments that Hamson did. Not every person benefits from life alike; perhaps few persons can be expected to experience the height and depth of feeling that affect a poet of the type of Hamson. He proves, however, that the state of hunger in the body results in a state of mind that is productive of emotion and carries with it profound possibilities of inspiration and depression. It shows, furthermore, that what we are prone to describe as physical conditions of the body are intimately connected with mental and spiritual states. Hamson's "Hunger" should be read by laymen and physician alike, by scientist and student. It depicts the mastery of the human condition and of human affairs. As a human document it rivals Thomas DeQuincy's "Confessions of an English Opium Eater."

The Increasing Life Span in the United States

A COMPARATIVE statement showing deaths and death rates by age groups in the United States during 1910 and 1920 has recently been issued by the Bureau of the Census. This shows that the death rate was lower in every age group in 1920 than in 1910, the most pronounced change appearing in the rate for infants under one year of age which fell from 13,084 per 100,000 in 1910 to 9,660 per 100,000 in 1920, a decline of approximately 26 per cent. In the age group above 75 years there was a fall of about 6 per cent, while in the next lower age group, 45 to 74 years, the decrease was 12 per cent due largely to a lowering of the rates from tuberculosis, acute and chronic nephritis, organic heart disease and typhoid fever. In the decade under discussion, for example, the general death rate from tuberculosis has fallen from 160 per 100,000 to 114 per 100,000; from acute and chronic nephritis from 99 to 89; from accidents from 84 to 71 and from typhoid fever, the remarkable drop from 24 to 8 has occurred.

Nevertheless, the statement that the death rate in every age group is lower in 1920 than in 1910, at first glance appears fallacious because, of course, every living person must eventually die and the best which sanitary science can hope to do is to postpone death as long as possible and to render the years of life economically potential. The data above referred to show that whereas in 1910, 805,412 persons died in the registration area of the United States, in 1920 the number was 1,142,558. If the total number of deaths in

each of these years is distributed by age groups so that the percentage of each of the whole is shown, the apparent fallacy is dissolved and it is seen that there has been a reduction of 4.89 per cent in the age group and below fifteen years and a compensatory increase in the later age groups.

Year	Under 1 year	1-14 years	15-44 years	45-74 years	75 and over
1920	15.28%	10.50%	24.07%	35.12%	14.96%
1910	19.17%	11.50%	23.21%	33.09%	13.04%

This means an increase in the average life-span since more people are getting into the later age groups before they die. This in turn means a greater economic life span, a longer period of productivity and hence an increase in the national wealth, since it affords an opportunity for the individual to repay society the cost of his care during infancy and childhood. Economic prosperity not alone permits greater activities on the part of the direct health agencies; it brings in its train also those benefits which flow from the full dinner pail, the sanitary dwelling and factory, adequate clothing for protection from weather and predatory insects, good roads, and greater opportunities for education, culture, and recreation.

Popular Eugenics and its Place in Public Health

ONE of the most important and at the same time, one of the most neglected phases of the public health problem is eugenics and its antonym, dysgenics. To be sure these twin sciences as yet are in their infancy but sufficient progress has been made to warrant their presentation to a general public which is already beginning to manifest considerable interest in the conservation and improvement of the racial stock. The agricultural portion of the community has learned the value of the careful breeding of horses, cattle, swine, and domestic fowls in order to develop certain desirable qualities and once in a while the idea registers that perhaps it is quite a desirable and nearly as practicable, to apply the same methods to mankind. The laws which require the presentation of health certificates by candidates for matrimony have met with ready acquiescence and, although their primary effect has been a certain limitation of the spread of the venereal diseases, they have served to impress upon the subconsciousness of the community the necessity for care in the selection of a mate. Many colleges now give adequate courses in eugenics that will probably aid considerably in the science of being well born. It is believed, however, that the publication of eugenic and dysgenic charts with explanations couched in simple language will be a valuable means of bringing home to the public the fact that certain physical, mental, and moral traits are transmissible by heredity and that it rests with the individual to determine to a considerable extent the characteristics which his descendants shall possess. To this end THE NATION'S HEALTH purposes to publish from time to time data bearing on the subject and it is hoped that this material will be copied widely and utilized by public health workers generally.

It may appear at first glance that this is a refinement of sanitary medicine which may well wait until we have made a greater impress upon syphilis, tuberculosis, and cancer, until we have reduced the mortality rates from organic heart disease, until man in many parts of the world has ceased to be a collection of ambulatory zoological gardens. In a way this is true, but on the other hand the Church long ago demonstrated the fact that an effective stimulus to present righteousness is a well presented uncomfortable hereafter. Furthermore, heredity is a subject about which human beings have for a long time possessed a lively curiosity, as witness the perpetuation of the prenatal impression myths and the undying story of Jacob's "ringed, streaked, and striped" cattle and the facts of eugenics will find an appreciative audience if they are set forth in readable interesting style. Without doubt much of the work which is being done in the improvement of the environment of man and the elimination of preventable disease, is exercising by a process of indirection a profound effect upon the racial stock. It is equally proper and almost as necessary that the problem be attacked directly.

In spite of this optimism, it is believed however, that mankind as a whole is not sufficiently developed to apply consciously the science of eugenics in a large and practical way, although it should not be forgotten that from the lowest orders of the human race to most highly developed peoples, miscegenation repressed or at least not favored. The intellectuals of every community have always striven to direct their children to the choice of "well-born" husbands and wives. The basis on which choice has been made in the past has been in part intuitive and in part upon the basis of wealth and position. Neither of these is an accurate eugenic yardstick but they have been and still are better than no standard of eugenic measurement at all. A propaganda of eugenics will be welcomed by this stratum of society.

Schools, of course, are ideal places in which to teach the necessity of healthy marriages of good stock but many prejudices against the inclusion of such material in lower school curricula still exist and after all the home is the natural place in which to inculcate these lessons. Thus taught, the child acquires subconscious eugenic standards to be unconsciously applied in after years. The

father and mother who talk to each other about such things plainly and interestingly in the presence of their children give them valuable training without their being aware that they are receiving instruction. The births of household pets serve as object lessons to the children who thus see in a practical way the results of certain crosses and the perpetuation of coat-markings and other physical characteristics. They grasp the differentiation between mongrels and thoroughbreds and with a little stimulation see that the same laws apply as equally and as inexorably to the human race. The great desideratum is the education of the parents so that they may intelligently direct the minds of their children so that their ideas shall be clear-cut and capable of almost automatic application in adult life. In some of the European cities, the health department has an expert eugenic adviser on its staff for the purpose of studying the pedigrees and giving eugenic assistance to those contemplating matrimony. Perhaps we are not quite ready for such an official in the United States but the health officer who will popularize eugenic teaching will meet a hearty welcome and without doubt will accomplish much good.

Statistical Report of Infant Mortality for 1921

THE annual report of the American Child Hygiene Association, covering 573 cities over ten thousand in population, is an accurate account of recent progress in the saving of lives of infants. There were 746 cities of ten thousand population or over in the 1920 census. Of these 664 are in the Death Registration Area, and returns are made on 573 of these. The report of the Association covers 89.0 per cent of the cities in the Death Registration Area, and 94.4 per cent of the population. Such percentage of error as must appear in the final figures has been reduced to the minimum by special investigations of all excessively high or exceptionally low returns. The figures received show a most remarkable reduction in infant mortality throughout the country. For cities grouped according to population, the rates are as follows:

Population	1917	1918	1919	1920	1921
Over 250,000	95.1	102.3	87.0	89.0	75.3
100,000 to 250,000	102.1	113.6	92.2	94.5	77.7
50,000 to 100,000	102.1	106.3	106.3	94.0	80.7
25,000 to 50,000	101.9	109.4	92.6	92.8	81.4
10,000 to 25,000	101.3	114.1	94.7	93.8	82.3
All cities in area	98.6	106.7	91.4	91.5	77.9

Owing to the generally lower Infant Mortality Rate in the rural communities, the figures for the entire area may be expected to be four to five points lower. New Jersey is not included in these ratios because her classification does not make her rates comparable to the figures given.

The lowest infant mortality rate in cities over 250,000 is achieved by Portland, Ore., (48 per 100,000) while the lowest rate (24 per 100,000 of any city included in the report was recorded by East Hartford, Conn. The variations in the infant mortality rate are shown graphically in a chart which should be framed and kept for the daily consideration of all city health departments. Lackawanna, N. Y., showing a death rate of more than 250 per thousand, and the three cities registering a rate of 150 would be stirred to make the necessary effort to bring in the next report their rates into more harmonious comparison with the forty-three cities whose rates are fifty or less, or at least they would be moved to make such a study of local conditions as would determine whether climate, industry, community hygiene, or nutritional work is fundamentally wrong. Much difficulty, of course, was encountered in securing accurate data. The quickest way, states the report, for a community to reduce the infant mortality rate recorded against it is to demand registration of every birth, as required by law.

Smallpox by Popular Vote

SMALLPOX depends on the popular vote. Study of the smallpox statistics in twenty states recently reported by Dr. J. P. Leake of the United States Public Health Service for the last six years and of the vaccination laws in the same states indicate that the people have generally obeyed the vaccination laws that they have made. Wherever popular sentiment has sustained a strong centralized compulsory vaccination act, smallpox is today negligible; where local authorities have been given discretionary powers as to enforcement, invariably the rate has tended to rise; and where the laws have lacked compulsory features or there have been no laws, the rate is high.

In the twenty states considered, four eastern states show a combined smallpox curve that has been at a consistently low level for the six years. Seven southern states and six central states show curves that are much higher and are very similar to each other, though that of the central states is about twice as high as that of the southern states. The three Pacific Coast states show a most extraordinary increase in the disease, the smallpox curve having soared from one nearly as low as that of the eastern states in 1915 to one eight times as high in 1920.

Within each of these four geographical groups the better the status of vaccination in the law, the lower is the smallpox rate. The states where vaccination of school children is generally required have little smallpox, averaging three cases a year

for a community of one hundred thousand inhabitants; the states where there is no such requirement have 113 cases per year for each one hundred thousand persons, a rate high enough to make it probable that one person out of every thirty would at some time have an attack of smallpox.

The Outlook for the Blind

THE first annual meeting of the American Foundation for the Blind was held at the School for the Blind at Austin, Texas, June 28, 1922. Thus the work of the American Association of Instructors of the Blind assumes a permanent character, national in scope, and, in taking over responsibility for the publication of *Outlook for the Blind*, publicity and the vigorous prosecution of an enlarged program of scientific care and training of the blind are assured. The highest credit is due the voluntary organization that has fostered this enterprise and a future of increasing usefulness is predicted for the organization on the new basis.

Homeopathic Physicians Emphasize Public Health

THE seventy-eighth session of the American Institute of Homeopathy which convened in Chicago the week of June 18 to 23 carried an outstandingly good program on sanitary science and public health. Occupation, posture, rehabilitation, medical supervision of industry, skin lesions growing out of occupational hazards, the specific problems of the woman worker were severally discussed and their interrelations brought out as well as the responsibility of the physician for the enlightenment of the worker and for making medical service available and more generally effective.

The most hopeful sign of the times is the increasing amount of time and attention that is being conceded to social medical problems by the physicians themselves. If a short time since the medical profession could be charged with shortness of vision, indifference, and isolation, it is so no longer for individuality and collectively the medical groups are assuming their civic and social responsibility.

Physician, Heal Thyself!

DO HEALTH departments generally practise what they preach? Are they more or less efficient physically than other bodies of professional workers? In urging before the Joint Annual Conference of Sanitary Officers and Public Health Nurses in the state of New York the importance as a health measure of an annual physical examination of every man, woman, and child in the state, Dr. Hermann M. Biggs, commissioner of health, made the statement that, though extraordinary valuable in the interest of preventive medicine, and advocated for years by the department, not until recently had the members of the New York Health Department systematically undergone examination. The results were startling in the number of serious and previously unrecognized defects and diseases disclosed, and the results of reasonable care subsequent to these examinations were sufficiently gratifying to extend the practice.

Again we have emphasis that health, the most important asset of any people, needs to be made a definite objective, both in matters of early education and in continuous supervision throughout adult life. Health does not "happen." It is not a gift. It needs to be actively sought, and secured by habits self-imposed.

A SENSE of local responsibility for the welfare of the children is what is needed to abolish child labor, declared Herbert Hoover before the National Conference of Social Work in Providence, June 27. Failing in this, an amendment to the Federal Constitution must be sought as the only other alternative to overcome what he considers "a blight that in its measure is more deplorable than war." Forward looking states have passed statutes which fully protect the child in its minority, but there is still a minority of states which are "still in the Middle Ages in their attitude toward childhood." The sense of local responsibility is the only saving grace in this matter, and nothing can be more disheartening than the impulse given to centralization under Federal control by the continuous failure of local government in a matter affecting the nation as a whole so vitally as does the question of child labor. An industry that cannot exist without cheap child labor has no right to exist. A nation that continuously exploits its children is foreordained to fail.

THE relief operations of the American Red Cross in Europe were officially closed June 30. Thus closes what has been perhaps the most magnificent demonstration of humanitarian effort ever witnessed. Especially in the field of child welfare have American objectives and American methods served the world. The activities involved have given our own workers a broader outlook, and better organization. The whole story is one of real achievement.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

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Some of the Present Issues Before the Association*

BY C. E. FORD, M.D., PRESIDENT, AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, GENERAL CHEMICAL COMPANY, NEW YORK CITY

THE past year has been a strenuous one in the business world, the changes registered during this period having a very definite bearing upon the future of industrial medicine. The program arranged for the Seventh Annual meeting of the Association is comprehensive in subject material and is calculated to indicate present trends and to point the direction in which constructive effort on the part of industrial medicine needs to be emphasized.

There are a few items in particular that the Association should bear in mind. The period of great business depression through which we have just passed has reacted somewhat upon the particular job with which we have to do. Happily the current has turned in an upper direction, and if the opinion of responsible industrial experts is to be taken seriously, the worst is over and we can confidently expect that our particular work will receive greater attention and larger material support in the very near future. I understand that a year ago, business generally was on about a 40 per cent basis of production and that today it is on a 60 per cent basis.

The basic business of the United States, namely, the iron and steel industry, is, we are informed, on a larger productive basis than ever before in the history of the country excepting during the years 1917, 18, and 19. This means that within a short time this activity will be reflected in general business conditions.

A considerable effort has been made this year toward increasing the membership of the Association and it has been a fruitful endeavor. The membership has not only increased but it has responded in the payment of dues. The active interest has increased, as reflected by the program we are about to hear, as well as the attendance at this session. Our financial condition is improving, although we still have a deficit, which must lead to some action on the part of this Association looking to an increase of the annual dues. I think it will be wise to levy an assessment of perhaps $5.00 which would carry us through until such time as a constitutional amendment can be made, thus providing for a greater source of permanent income.

Fixed Income Necessary

If we are going to accomplish anything as an organization, we must have a fixed income, perhaps much larger than any of us have considered as being necessary. From ten thousand to fifteen thousand dollars per year will be necessary. This will enable us to employ a full time executive secretary as is done by many of the larger and more active public health organizations, as well as the maintenance of a proper medium for our own and general education.

The relationship of the Medical Department to the industrial organization is a question that is of concern to all of us. The activities of the Medical Department are too often under the direction of a personnel manager who perhaps may be wholly lacking in human understanding and unappreciative of the finer confidential relationships of doctor and patient. Until personnel managers are trained to a better concept of the ethics of the situation and industrial relations are recognized as of sufficient importance to merit the attention of the higher executive, the medical department should be under the direction of, and answerable to, the highest possible executive. This opinion is not based on the desire to set up a false plane of authority or an intellectual aristocracy, for the industrial medical man, but solely upon the observation that the lack of understanding of the medical viewpoint on the part of employment managers has often seriously interfered with measures designed for the benefit of the patient, and, ultimately that of the employer. This form of organization may not be in accord with the theory of scientific business organization, but it is of no inconsiderable practical value.

It seems to me that our members have been somewhat remiss in having neglected their opportunity of making simple researches by known methods of investigation. Many problems confront the industrial physician daily, which involve facts at present unknown that can be established with a very little effort. An industrial toxicology needs to be formulated; dust is a constant problem and it presents a variety of aspects according to the nature of the industry with which it is associated. Special consideration should be given to the relative carbon and silica content of the dust encountered. Many other specific problems

*Address of the President before the Seventh Annual Conference of the American Association of Industrial Physicians and Surgeons, St. Louis, Mo., May 22-23, 1922.

will suggest themselves as observation is extended.

There is one phase of the relationship of the profession, whether private or employed by an industrial organization, apparently in conflict with medical ethics, as now understood, namely, the right of the employer to so-called privileged information in possession of the medical department.

Medical departments are or should be for the mutual benefit of the employer and employed. If the information concerns the welfare of the individual fellow employee the employer's property, or the public, mutual interest demands that it should be commonly available. Bear in mind that this assertion bears only on public rights and does not apply on the fairly well recognized rights of the individual. I believe it must be recognized that industrial medicine is a form of group practice and a modern creation which endeavors to bring together all of the arts and sciences which bear on human welfare. It differs from other practices chiefly in organization which insures coordination of effort, in records based on scientific findings in the special field and a provision for adequate reports considered from professional, legal and economic points of view. However broad the medical service in a given plant may be or whatever support and sympathy the management may have for the medical department, the medical department must sell itself to the individual employee, build up confidence, and earn respect on precisely the same basis as does the private practitioner in his relation to the public.

Service Self-Administered

THE rapid extension in scope of medical and welfare services in industry, involving many cooperative enterprises and the use of pre-existent voluntary organizations, has often offered complicating problems of administration. Unqualified success has attended the efforts of Sir Arthur Balfour and his colleagues in developing in Sheffield, England a complete industrial medical service on the basis of pre-existing workers' committees. When the National Insurance Act went into effect there existed in most of the industrial plants of England no coordinated system of health provision, but each industry had its own yards club which administered its benefits through the offices of workers committees. Advantage was taken of a clause in the insurance act which allowed of the creation of small approved societies, and thirty-three approved societies were organized, representing the thirty-three principal manufacturing concerns in Sheffield, a central organization being formed which could speak with authority to the governmental department in London. The central organization was put in charge of George Slack, a man of great previous experience with the friendly societies, and members of the staff were placed on the several committees where statistics or the necessary observations were complicated. As a result the work of the thirty-three large works in Sheffield have shown greater efficiency at a lower cost than anywhere else in England. Not only that, but an extension of activities far beyond the requirements of the law has been made. Of this self-imposed and self-administered service, speaking through the *New York Times*, Sir Arthur Balfour says:

It was quickly found that there was scope for still further activities if the health of the workers was to be looked after and heavy drains on the funds were to be avoided, through either malingering or long and persistent illness. At this stage the employers of Sheffield decided to put together a fund on the basis of a certain payment per head of their workers in the approved societies for the following objects:

(a) To provide adequate convalescent homes for the workers.

(b) To provide a system of visiting nurses.

(c) To provide extra assistance and clothing in maternity cases when required.

(d) To provide a medical service consisting of specialists.

(e) To assist in cases where operations were necessary.

One of the greatest difficulties which was encountered was the question of convalescent homes. There are a number of convalescent homes in England to which the central funds subscribe, but we always found that they were very full and our members very often had to wait several weeks before they could be admitted. We therefore decided that we must provide our own convalescent homes.

We commenced with a small home known as "Chindrass House" at Matlock, which was capable of taking twenty men workers. We soon found that there was much to be done by catching the workers before they actually fell sick and sending them to a home for a week or two to save them breaking down. This was not an unimportant part of the convalescent service and very quickly our home was overcrowded. In the meantime we had purchased another property known as the Fairmount Convalescent Home at Matlock, and equipped it for forty women, and, in connection with this home, one room was reserved where mothers could take their babies soon after they were born and remain for a fortnight or three weeks. This has proved to be most invaluable, not only on account of the benefit which the mothers and the children derive, but also owing to the effect on the other women in the home at the time, who have gone there to convalesce, very often in ill health and somewhat depressed, and the interest which the babies have created in their minds has very often largely contributed to their quick recovery. Not only this, but they have learned how a baby should be taken care of.

More accommodation soon became necessary than the Chindrass House for Men provided, and the employers have recently purchased a large property known as "Stubbin Edge Hall," with fifty acres of ground, capable of providing for sixty to eighty male patients. This has just been put into operation and is already paying its way.

This activity, it should be said, and the other extensions of service mentioned herein are quite apart from the government scheme. It is administered under the "Employer's Extra Benefit Fund."

An interesting and highly valuable phase of the health service has to do with maternity care. This was organized through the Central Maternity Ladies' Committee at the Cutlers Hall, Sheffield, which consists of the wives of the directors of the thirty-three works, but principally of the workers' wives of these works. Each separate works has its maternity committee presided over by a director's wife, but consists of at least three-fourths of the workers wives. The ladies on these committees visit the maternity cases and deliver the maternity benefit, either in money or in kind, according to the circumstances which they found. They do more than this; whenever an anticipated birth is notified they go to see whether the conditions are favorable and whether adequate preparation has been made, and if not they give advice and assistance. Every case is visited and reported upon. A distinct fall in the death rate of children belonging to members of the Approved Societies as compared with the national death rate, and the convalescent home at Matlock has contributed very largely to this as, naturally, preference is given to the most necessitous cases.

The work has not been carried out without its difficulties and has required a great deal of perseverance and energy to organize, but has repaid handsomely for any trouble that may have been taken.

The new national program of the Safety Institute of America to curtail the number of avoidable accidents to school children is described in *Safety*.

Public Health Problems and Industrial Medicine*

Practical Application of Public Health Service Activities to the Problems of Industrial Medicine

By L. R. THOMPSON, Surgeon in Charge, Industrial Hygiene and Sanitation, United States Public Health Service, Washington, D. C.

SO LITTLE is actually known of the work of the Section of Industrial Hygiene of the Public Health Service and its practical relation to industry and the industrial physician, that it would seem to be of mutual benefit to the Service, and to industrial medicine briefly to outline what the United States Public Health Service is trying to accomplish in this field of work.

The industrial physician has come into existence largely because of two factors: (1) because the hazards of industry mainly affect the health of the employees; (2) because it has been unquestionably shown that his work is of economic value to industry.

Though we cannot lose sight of the fact that the health of the worker is the hub of the wheel of industrial hygiene, on the other hand, the advancement of industrial medicine may be stimulated more rapidly by convincing industry of the economic value of industrial hygiene. The most important epoch that industrial hygiene has passed through was coincident with the industrial depression that has swept the country since the World War. Previous to this its rapid growth in the United States was due to the enormous increase in industrial operations beginning with the war. Fortunately for industrial hygiene, it was just commencing to offer its wares at the time when they were most salable. Not only were employees interested in what was offered, but industry itself was sufficiently prosperous to lend a favorable ear even to something of which it was not quite sure and did not quite understand. One good resulting from the late war was the rapid extension of industrial medical work throughout the United States. Though industrial medicine slumped with the depression of business in this country, this was logically to be expected, and there is every reason to believe that the recovery of industry will also see industrial medical work reinstated on a more substantial foundation than before the war.

*Read before the Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons, St. Louis, May 22-23, 1922.

What happened to industrial medicine in connection with the recent business slump? In the great majority of instances, the industrial medical division decreased in proportion to the general slump in that particular industry; in some instances the depression was somewhat greater than the general business depression. Either of these changes was to be logically expected and outside of the temporary inconvenience, no permanent harm has been done, for the medical work will return to normal as business becomes normal. In a very few instances the industrial medical work has forged ahead, suffering no actual reduction, but in reality expanding. One such plant as this I visited not long ago in the central west. In such instances as involved abandoning the industrial medical work, the industrial physician, no matter what excellent work he may have accomplished, failed in one important point—he failed to demonstrate his economic value to the plant officials. There will probably never be another epoch in industrial medicine that will point out more clearly the necessity of demonstrating the value of industrial medical work than the one we have just passed through. I dwell with emphasis on this subject because the work done by the United States Public Health Service in industrial hygiene aids the industrial physician in presenting the value of his work to industry.

Parallel Developments

The literature of the development of industrial hygiene brings to notice the correlation between industrial laws and the progress of industrial hygiene. In every country studied by the Department industrial laws have antedated industrial medicine, except in those industries which have advanced on their own initiative. The formation of industrial laws is not a simple problem; basically the law is for the protection of the industrial worker, but in promulgating such a law it is necessary to take into consideration its effect on industry and the cost of production. To specify the same standard of illumination for coarse work as for fine clerical work might be esthetically desirable, but it is neither necessary nor economical. Elimination of all dustiness in a work process where there is a dust hazard might also be desirable, but there is certainly no scientific reason for such a demand if the dust itself is not a specific poison. Not long ago it was the idea of many sanitarians that every city emptying its sewage into a stream of water should be compelled first to treat this sewage to such an extent as to render it entirely innocuous. Now the demand is that cities treat their sewage to the extent that other cities located on the same stream may take their water supply and with reasonably adequate treatment render it safe for drinking purposes. The same view must be held regarding industrial laws. The law must protect the worker against the health hazards of his work processes, but regulatory measures must be based on scientific investigations so that when this main requirement is satisfied they may avoid needless and unnecessary requirements which increase the expense but do not provide additional safeguards.

Part of the program of the Industrial Hygiene Section of the United States Public Health Service contemplates investigations of this sort. The illumination and dust hazards previously referred to are two important health problems of this kind which have been the subject of recent study by the Department.

The standards of illumination have been rather completely considered, but the field is large and there is still need for further investigation. Increased production and decreased accidents have been demonstrated as closely correlated with good illumination. There are many points, however, on which it would be desirable for the industrial physician to have more data which might afford better basis for his demand for the increased expense of improved illumination. What is the actual increase in efficiency under good illumination as compared to poor illumination? What is the difference in the visual fatigue in employees with normal vision and

those with certain defects in vision and sight in poor and in good illumination? What types of work are best suited to different eye defects to give minimum fatigue to the eye and maximum production? What amount of physiological fatigue to the retina and eye muscles is caused by different kinds of work under different degrees of illumination and different types and colors of light? These are some of the more important questions we have undertaken to solve in our studies of eye defects among the post office employees of the government. We have been fortunate in this study to have the advice of some of the best practical illuminating engineers in industrial work, the complete cooperation of the post office officials, and the good will and assistance of approximately 3,100 employees who have willingly submitted to examinations and tests of efficiency. Some of the questions above propounded will in all probability be satisfactorily answered with the publication of these results, which will be in about six months. The fatigue work will require a longer time.

The Dusty Trades

The dust work now being carried on by one of our engineers under the direction of Professor C.-E. A. Winslow at Yale and in cooperation with the Bureau of Mines at Pittsburgh is a part of a very extensive and practical program. The South African workers, after intensive study for which the rest of the world must be eternally obligated to them, have chosen certain standards for dust measurements. They have also arrived at some rather definite conclusions as to the size of the dust particle which are to be considered as the most dangerous to workers. These conclusions, however, represent a rather limited class of dust and in this country, where hygienic measures must deal with many classes of organic and inorganic dust, conclusions on the basis of the African data are not sufficient. The high points in the program of work undertaken by the Public Health Service are as follows: (1) A study to determine the best methods of collecting dusts of the various classes; (2) a study from post mortem examinations to determine the measurements of the dangerous particles in the various classes of dust; (3) a study to determine specific standards of dustiness for the different classes of dust; (4) morbidity and mortality studies to determine the relative harmfulness of different classes of dust. The studies of illumination and dustiness are of value as scientific research, but their greatest value lies in their practical application to the industrial worker and industry as a foundation for practical industrial laws on these subjects. Furthermore, the necessity of their application to the worker and industry, coming as it does within the province of the industrial physician, is an important factor in broadening his field of work.

The research on illumination and dusts has been spoken of because of its bearing upon the framing of industrial laws, but the scientific work of the Service does not end with these two subjects. As every industrial physician knows, the scientific investigation work to be done in regard to the health hazards of industry is endless because of the complexity of the work processes involved in the present day factory. The work of the Service in this field will only be briefly touched upon in order to indicate its general trend. In the past year we have made a contribution to the study of cutting oil dermatosis in the nature of suggesting a method for its prevention. At the Hygienic Laboratory we have been studying the relation of zinc to brass founders' ague, as suggested by Lehmann, and the occurrence of zinc in food stuffs and in the normal tissues of the body. The results of these studies will be known in the coming year.

With the excellent assistance of Professor Frederic S. Lee and Professor Scott of Columbia, and Professor Adolph of Pittsburgh, the Public Health Service has been engaged in the study of physiologic effects of fatigue, and during the present year the investigation will also include a study of high degrees of temperature and humidity and their association with the production of abnormal fatigue.

At Hagerstown, Md., in connection with the general studies of the causes of sickness in normal groups of population being carried on there by the Public Health Service, the Rockefeller Foundation, Johns Hopkins University, the State Board of Health and other organizations, a similar study of cement workers has been undertaken. This study is expected to cover a period of from three to four years, and should furnish excellent comparative sickness records to determine the effect of this industry—which has always been said to be a harmless one—on the health of the workers.

In our studies of the physical defects in workers in various trades, beginning with Dr. J. W. Scheres-chewsky's study of the garment workers, extending to the present observations on glass workers, and including employees in the steel, chemical, cigar, and pottery industries, the fact is outstanding that almost consistently a higher per cent of physical defects occur among employees with bad posture than with those with good posture, age as a factor being ruled out. As an instance of this, in 5,392 examinations the rate of suspected tuberculosis cases per thousand employees was 49.5 in persons with good posture against 71.4 in those with bad posture.

The subject of posture therefore becomes highly important. It is not desired to imply that the Public Health Service studies alone have brought out the significance of this subject. The studies of Dr. J. E. Goldthwait and others have emphasized its importance; however, from an industrial standpoint such extensive observation is called for that the Public Health Service plans to make exhaustive investigation of the effects of good and bad posture on the health of employees, and of the factor of the work processes in the causation of bad posture.

Physical Defects in Workers

It is only possible to touch briefly on the investigative work of the Public Health Service. Dr. C. E. Ford, in the last issue of the *Journal of Industrial Hygiene*, states:

> The doctor who accepted employment as an industrial physician merely to run a dispensary for emergency service, or to fill his wards for teaching purposes, or to protect the interest of his employer in the case of liability claims can hardly be considered an industrial physician in the strict sense. The greatest shortcoming on the part of the physician in industry from a strictly medical viewpoint is his neglect of research. Investigation and inspection of plants disclose innumerable opportunities for saving measures in illimitable variety.

What the Public Health Service has done in its investigation work is of use to the majority of industrial physicians and may be applied in a practical way to their every day work.

Mr. Sydenstricker of the Public Health Service presented to this Association a plan of assistance through the analysis and interpretation of industrial sickness records. It should be noted in passing that up to the present time our knowledge of the relative dangerousness of various health hazards has been gained from mortality records, largely kept by insurance companies. The analysis of these records has been of the utmost value to the industrial physician, but as in general public health work, mortality

records only represent the end result. They do not tell the story of the sicknesses during life, nor are they of great value to the health of the worker while he is alive. Industrial sickness records bear the same importance to industrial medicine as morbidity records on communicable diseases do to epidemiology.

Many industries keep records of sickness in which small groups of workers are exposed to certain definite health hazards. Though in an individual industry the group may be too small for statistical analyses, a combination and correlation of the records of these small groups in several industries would reveal a clear-cut picture of the influence of a given hazard on the health of the worker.

This cannot be accomplished in a day. It is first necessary to provide records which are comparable. In many industries this will involve the cost of making the preliminary change, but to offset this first cost there is certainly a secondary saving. Such standardization by records not only makes it possible to compare one industry with another, an item of great economic value in the estimation of the efficacy of industrial medical work, but it opens the way for scientific research in industrial morbidity records with relation to specific health hazards.

An additional thought in regard to industrial sickness records was suggested to me by Dr. Otto P. Geier of Cincinnati, and its development will be an invaluable contribution to medicine. No other records of sickness give us as accurate a history of the individual as do our industrial morbidity records. The family physician does have to a certain extent a mental picture of the past illnesses of his regular patients; some few have written records, but they are certainly in the minority. The specialist may obtain a fairly accurate history of his patient's past, and the pathologist may give us an end picture from which to reconstruct a past history, but none of these men has a daily record year in year out of the physical condition of the patient, his variations in efficiency, all of this information tied to a preliminary physical examination of the individual at the beginning of the period of observation. Nowhere except in industrial morbidity records can such a history be found.

What does this mean to medicine? A worker for the first time shows the clinical signs of tuberculosis. From his industrial record we are able to gain a clear view of the nature of the illnesses he passed through for several years back and the effect of the disease on his efficiency record. One such case would be negative. But if cases of this sort appearing here and there in the records of many industries provide a picture of the developmental period of tuberculosis, that is invaluable to the clinician. Such a study is contemplated for the coming year, and a report on the results of the work will be made at the next annual meeting of the Association of Industrial Physicians and Surgeons.

One more point arises from the tendency of individuals and corporations to write the Federal Government for information on industrial subjects. It has been necessary for the Public Health Service to develop a consultation service to meet requests pertaining to industrial medicine and industrial hygiene and sanitation. These requests are of all sorts and types: from the individual worker who is interested in the effect on his health of the special work process he is engaged in; from the industrial physician who meets with a special health hazard, and has neither the time, the library, nor the laboratory to work out his problem; and lastly, from the industry itself which is engaging in a new class of work and desires to know the hazards to be expected and the means of prevention.

In the majority of instances we do not have the funds nor the time to work out the individual problem, but from the Congressional Library, the Library of the Surgeon General of the Army, and the consultants of the service in industrial hygiene who are authorities in their individual lines, we are usually able to answer the inquiry by giving an outline of practically all that is known on the subject in this country and abroad. The consultant service has been developed to meet the present demand and it has been of practical assistance to all classes of people interested in industrial medicine. On all points in which this consultation work can be of assistance to any industrial physician, industry, or employee, the service is cheerfully extended.

This paper was not designed to bring out any special scientific facts; it only sets forth briefly the work of the Industrial Hygiene Section of the Public Health Service so that the Service and industry urge a better mutual understanding in the great field of work of industrial hygiene. Primarily what we have tried to keep in mind in the Service work is its practical value to the industrial employee and to industry. We have neither the funds nor the personnel to take up the study of all the important hazards that affect the health of the industrial worker; but we have tried to keep relative values always before us and to select for investigation the industrial problems that affect the greatest number of workers and the elimination of which, like the elimination of the more important communicable diseases, will have the greatest bearing on industrial morbidity rates.

Formula for Denatured Alcohol

The following formula, to be known as specially denatured alcohol Formula No. 46, has been authorized by the Commission of Internal Revenue for use as antiseptic, sterilizing and bathing alcohol by visiting nurse associations, public nursing associations, clinics and dispensaries, exclusively. To every 100 gallons of pure ethyl alcohol add 25 fluidounces phenol, U.S.P.; 4 fluidounces oil of wintergreen or methyl salicylate, U.S.P. This formula, the commissioner states, will only be authorized for use by institutions and organizations named above which are of a semi-public character and engaged in charitable work.

President-Elect A. M. A.

Keystone View Company, Inc.

Ray Lyman Wilbur, M.D., president of Leland Stanford, Jr., University, who was elected president-elect of the American Medical Association at the annual meeting in St. Louis. Dr. Wilbur received his M.D. degree from Cooper Medical College, San Francisco, which later became the medical department of Stanford. From 1911 to 1916 he was dean of the medical school and in 1915 he was chosen president of the University. During the war Dr. Wilbur served as chief of the Conservation Division of the United States Food Administration.

Economic Levels and Tuberculosis Groupings

Natural Social Groupings, from Standpoint of Contacts, Supplant Other Points of Approach

By WILLIAM CHARLES WHITE, M.D., Medical Director, Tuberculosis League of Pittsburgh, Pittsburgh, Pa.

THE war against tuberculosis has too often degenerated into a war against the individual suffering from tuberculosis. Tuberculosis of all diseases is probably the most nearly universal; in fact, we scarcely needed the figures and careful work of Opie to confirm those of Naegeli and Burchhardt to illustrate that all adult humans living in civilization experience an infected period as also do many children, food-producing animals, and, less frequently, birds and other mammals under captivity.

It has other characteristics of equal importance. More than 90 per cent of tuberculosis as it infects mankind is in the lungs, where it may be harbored even in open form for a whole lifetime without producing the external signs of sickness. In fact, many tuberculous patients, after the morning cough and expectoration clear out the sputum for the day, show nothing to expose their illness to the world and often appear fat and healthy. It is thus easily a hidden disease. It differs in this way radically from those other infections which even the untrained eye readily detects, such as cancer or smallpox, or which produce a malaise and evil feeling against which the body and even the mind is no proof, such as diphtheria, or malaria. It therefore does not subject itself to the rigid laws of control of epidemics with which we have become familiar.

Probably no other illness permits of so great a carelessness. The discharge from the lung can go no place else but into the mouth by way of the throat and what is more simple than the expectoration, which Dickens described as one of our national characteristics, yet this is the method by which new cases of tuberculosis are produced. Let me repeat. It is a universal infection, the cause of 10 per cent of our sickness; and during a great portion of this sickness it is easily hidden and thus becomes a problem not lending itself to laws and police authority and is spread by one of our bad national habits—spitting.

*Read before the seventh annual meeting of the American Association of Industrial Physicians and Surgeons, May 22-23, 1922.

Flexibility of organization is the keynote of modern medical service. Mobile dispensary units make possible the observation of affected groups on the basis of individual activities and group contacts. The individual is reached without loss of his social perspective.

This system really eradicates foci of disease and enables the treatment of the affected individual without making him an economic burden or a social pariah. Incidentally economic and industrial relationships of great moment are thereby disclosed.

Another curious feature of this disease is its steady decline from the beginning of our statistical records. During this decline there have been great discoveries; by Villemin, of its infectious character; by Robert Koch, of its cause; by von Pirquet, of a biological test to detect the presence of infection; by Trudeau, and others, of its curability based on physiological laws. There is no place on the declivity of the mortality rate to indicate these momentous discoveries in the history of this sickness. Other diseases, like the great influenza epidemic, come and despoil the curve from time to time but its downward course is unimpeded. In fact, so low is it in modern, new, and healthful cities that one hears occasionally the cries of the victorious crusaders who expect to stamp it out within a few years. It is, however, a greater problem than this. There is undoubtedly an irreducible minimum below which, with our present knowledge, we cannot descend. Epidemiologists since the war are questioning the tuberculosis problem anew. The more rapid decline of the last two years has raised many questions with no satisfactory answer; but there is one graphic expression by an unknown author who says we have "burned a hell of a lot of sputum in the last ten years," and this may explain part of it.

Among the more specific questions facing us today are the variations in racial susceptibility. A new impetus to this has been given by Dr. Paul A. Lewis of the Phipps Institute with his study on laboratory animals of the varying susceptibility of races. So careful has been the work that it is possible for him to trace the presence of his most susceptible race through all intermarriages with those of less susceptibility. We find the same question arising bountifully in the literature on the susceptibility of human strains, the varying susceptibility of the Irish and the Italian strains, the question of chronicity surrounding the Jewish stock, and now the varying picture presented by rural and urban communities mainly on the basis of the mortality rate.

We have had from the laboratory differentiated the well defined strains of tubercle bacillus, mainly the bovine, human, and avian strains—and now comes from the statistical department, mainly through Professor Brownlee's studies, the suggestion based upon the statistics of England and its cities and counties that there may be even among the human tubercle bacillus strains of varying character, one producing young adult tuberculosis and another adult strain producing old age tuberculosis with possibly a middle adult strain each varying in characteristics much as typhoid and paratyphoid organisms do. If this be substantiated, an entirely new ground is opened for study on the laboratory and clinical side.

One other field of activity has been opened up in this country in the University of Chicago by Dr. Long in an attempt to reclassify what is known as the acid-fast bacilli, to which the tubercle bacillus belongs, on the basis of their primary metabolic functions. Dr. Long allows each strain of bacillus only one way of securing its nitrogen at a time and has given us most interesting new thoughts on the life of the tubercle bacillus itself. In fact, at the recent meeting of the National Tuberculosis Association Dr. Long announced that from his studies in connection with Dr. Treat Johnson of Yale it is apparent from the chemical composition of the tubercle bacillus

that it does not belong, as we have always thought, to the plant group but rather to the animal group. These items indicate some of the complexities of this universal infection.

In the past twenty-five years there has gone on a very active crusade with the intention of eradicating this illness and we have directed our activity largely to the social groups which have a political basis; that is, we have taken nations, states, counties, cities, and city squares, simply because they were the most common limitations of human aggregation. During the past few years, however, the lack of cohesion in these social groupings has been evident to many as among the weaknesses of our methods and many thoughtful men have searched for a more cohesive grouping of society in which to work.

In a re-study of the various groups of society of which the main ones are the political, the religious, and the industrial, the industrial group is probably fundamental to the rest in every day life from the standpoint of cohesion and there is at the present time a well defined shifting of the ground of the tuberculosis activity to the industrial groupings. In ordinary life man's thought and interest are largely centered in that phase of his existence which satisfies his material needs. The mass of men and women devote one-third or more of each day to their industrial group living, one-third for sleep, and one-third for meals, pleasures, and all other activities; so that from this standpoint, also, it is the most important grouping arrangement. In this industrial life that care which will give the worker the maximum number of hours of labor under the most secure conditions of health, and the employer the full return for the wage agreed upon with the least loss of time from any of the irritations of ill health, will bring about the happiest result. Therefore tuberculosis forms a very important element by virtue of its chronicity and characteristics noted above in the whole program of health in industry.

Three great features of the tuberculosis control are; (1), the detection of cases needing care; (2), the detection of cases who are able to work; and (3), the examination of all households in which tuberculosis is found to be present. These can only be accomplished by the periodic examination of all employees and employers working in a plant and the examination of all applicants for employment.

For this purpose there has been devised what may be termed a Mobile Dispensary Unit. This consists of a group of doctor, nurse, and clerk and periodically a laboratory worker, an operator of portable x-ray machine, and some portable equipment. There is provided in each plant a room with such physical equipment as is constantly needed. In such examinations many questions of tact arise. Any disturbance of the industrial plant must be carefully guarded. The fear which examinations create among the ignorant must be cautiously dealt with. Each patient requiring care must be handled as an individual and not simply as a cog in a great wheel. In the past our dispensary work has been wholly different. It has been required that those sick had to make the journey to the dispensary wherever it was located. In the new plan the assistance is carried directly to the place where the examinations are made with the least possible disturbance both to the industrial activity and the time of the earning member of the working force.

It is a very common thing today for plants to look upon their welfare departments on the basis of return on investment. Careful examination of work people before they enter the plant can soon be shown to meet this point of view. But one of the weaknesses of this in community life has been the lack of provision for those that are discarded as a result of medical examination and their rehabilitation. Time will not permit me to describe the devices for correcting this.

In the experimental work in connection with industries which has been carried on in recent years there have been many discussions between labor unions and employers on the authority or privilege of employers to insist on medical examination and it has been necessary to devise some plan whereby these examinations are dominated by neither union nor employer. Our own suggestion and plan are that both employer and union join in securing their examinations and readjustments from service organizations in which both can meet on common ground and on the one hand conserve the interest of industrial plant and on the other, the rights of the employee, but this work has not gone far enough yet clearly to define the proper methods. One of the most important phases to be dealt with is the care of the sick in relation to the earning capacity of the family group to which the invalid belongs in such a way as to secure a return to health at a price that can be afforded.

Many devices for accomplishing this have been offered. It is so important a matter, however, that it will likely become the work of a new department of rehabilitation in the service which is rendered to the industry.

Much more difficulty is probably offered by the tuberculous man himself in industry. There is a rapidly growing number of those who should be not only living and working but should be encouraged as rapidly as possible to return to their work or, in many instances, never to leave their work. Any man in whom the industry has years of training invested is an enormous asset up to the period of his defection after which the industry of course must in justice carry the man until he becomes an actual loss.

Instead of pursuing the course of the past of getting tuberculosis out of the industry there is necessarily undoubtedly a new counter movement to get tuberculosis back into the industry with safety. The longer I work in this field the surer I am that a vast number of tuberculous individuals need never give up their labor. Two or three examples will illustrate this point.

The cases of two brothers, the sole support of their mother, appeared within two months of each other. One had advanced tuberculosis requiring absolute rest in bed; the other had early open tuberculosis with three months to secure his papers as a journeyman in plumbing. The whole group of mother and two sons formed an economic unit. By careful planning the mother undertook the care of the sick son at home and the second by intelligent cooperation was able to continue at work, returning to rest at four-thirty and remaining in bed until seven the following morning, when he arose and went to work. This has now gone on for over a year and both boys are apparently recovered; one at labor with care of not only himself but his fellow workmen and the other under strict supervision of visiting nurse and doctor, the mother acting as nurse to both of them. So the economic unit was conserved.

Another case involved one of the employees of one of our steel companies, who after six months in the Agnes Memorial Sanatorium returned home with afebrile, open tuberculosis to find his wife had become during his absence an addict to drugs and liquor. He could find at home no care and rapidly lost all that he had gained in his period of cure. After discussion with his employer in the steel company he was allowed to work four hours a day. Arrangements were made for the care of his wife in an

institution and of his son with relatives. He was taken into a night camp and during the last several months has steadily gained not only all that he had lost but is now in far better shape than when he returned home. An so on, may be cited innumerable cases high and low which with individual care and good judgment can continue earning even though enormously disabled and yet at the same time recover from their disease.

But this involved another question. We are geared in the world to normals based upon anatomy and physiology. This is not a normal for industry. Let me illustrate again what I mean. Three men entrusted with a problem of universal importance met the other day in a large hospital office. Before entering upon the technical discussion which they were there to pursue, they began inquiring about the health of one another. One had advanced tuberculosis and cancer, both apparently for the time under control by hygienic care and operation. One was terribly disfigured from the burns of x-ray. One had advanced tuberculosis and severe injury from a railroad wreck. Not one of them could have passed the draft of an army examining board or of an industrial medical office, yet all three of them were supporting not only themselves but their wives and children, the smallest family of the group being three children. They combined for the time the best knowledge in the country on one of its most important technical questions and were entrusted with its solution. Since seeing that meeting I have been giving much thought to a new standard which must be established in industries which I have called the economic normal. By this I mean what constitutes the limit at which a man ceases to be of full use to the industrial world. When does he cease to be an earning factor in any way in the world, and what provision must be made for him in the several stages from full earning capacity through partial earning capacity to complete dependence upon others?

It is a most important question and yet I believe that its solution is possible through a study of tuberculosis in its relation to industry and I am quite sure that a large number of people taking the cure for tuberculosis today should never have left their labor, but should be using the hours which exist between the time they leave their occupation and the time they enter the occupation in the morning in taking the requisite amount of rest and care to keep them as earning factors.

More than this, it becomes an important duty of every physician and examining officer to secure for every man in the industry, after training, the maximum number of hours of earning which the partially disabled one is able to accomplish.

If this plan becomes an economic principle in this country that more probably will be done for eradication of tuberculosis than by any other single influence offers because on such a plan we will get rid of great wastefulness and produce a vast amount of happiness that is not in existence in this field at the present time.

Recent Compensation Decisions*

THE question of a cerebral hemorrhage came before the Supreme Judicial Court of Massachusetts March 3, 1922.

The decedent, employed as a baker, was preparing to put dough into an oven when he slipped and fell ... While the decedent did not become entirely unconscious and "kept crying about his head saying that he felt badly" and died within fifteen minutes at the hospital to which he was immediately removed, he made no reference to the cause of his fall; nor did it appear that the fall caused any external physical injuries. The record of the hospital properly received in evidence showed that the patient was admitted in a state of collapse from cerebral hemorrhage.

The question of temperature of the working place was passed upon. "Assuming that in this case the decedent was a man fifty-seven years of age and working in a bakery with a temperature very high, would you say that would probably cause a cerebral hemorrhage?" The claimant's medical expert replied: "Yes, it is probable that the high temperature produced an intro-cerebral hemorrhage. It was an intro-cerebral hemorrhage in this case." The decree was affirmed and the award upheld.—*Feldman's Case, 134 N.E. 251.*

THE following case was decided by the Supreme Court of Tennessee, December 19, 1921. It seems that Milner was a cook for the Patten Hotel. On May 24, 1920 while employed in the performance of his duties in the hotel kitchen, he became too hot "and was stricken with a fainty feeling." He stepped into an alley for the purpose of getting some fresh air. "While standing in the alley at or near the door he fainted, or swooned, and fell, and his arm was run over by the rear wheel of an automobile truck that was passing along the alley. . . . He was immediately carried to the hospital in an unconscious condition and soon thereafter lockjaw set up from the injury and caused his death."

A portion of the opinion of the court is quoted:

We think that there is material evidence tending to show that the injury which resulted in the deceased's death arose out of and in the course of his employment. There is material evidence introduced tending to show that he became overheated while performing his duties as cook in the kitchen and became fainty, and stepped into the alley to get some fresh air, and fainted and fell, and his arm was run over by one of the wheels of the passing truck. There is also evidence tending to show that the kitchen in which deceased washed was always very warm, and that it was frequently necessary for the employees who worked in the kitchen to step into this alley for the purpose of getting fresh air. . . . The deceased's overheated and fainty condition arose out of his employment and it was on account of this condition that he became exposed to the danger which produced the injury. We, therefore, think the necessary causal connection between the employment and the injury appears.

The case was thrown out because of lack of notice.—*Patten Hotel Company v. Milner, 238 S.W. 75.*

IN a compensation proceeding in which it appeared that the employee subsequent to the inquiry went to work for another employer, and that there was a recurrence of the hernia which had resulted from an injury received while working for the first employer, the Supreme Judicial Court of Massachusetts, March 6, 1922 held that it was a question of fact for the Industrial Accident Board to decide whether this condition had a causal relation to the original injury and to warrant its findings in favor of the employee. There was evidence to warrant the findings and the decree was affirmed.—*Goglione's Case, 134 N.E. 240.*

It is reported that the Rockefeller Foundation has offered to Indian medical graduates, selected by the scientific board of the Indian Research Fund, five scholarships of $1,000 each, for the purpose of graduate public health work in America.

*Prepared by Miss Dorothy Ketcham, Director, Social Service, University Hospital, University of Michigan, Ann Arbor, Mich.

Mercantile Hygiene in the Health Program*

Survey Shows Need of Mercantile Hygiene and Benefits Therefrom

By ARTHUR B. EMMONS, 2ND., M.D., Director, Harvard Mercantile Health Work, 3 Joy Street, Boston, Mass.

THE success of industrial medical supervision has stimulated twenty-five stores in six cities to finance a five year study of store health. One half of this time has elapsed. The preliminary work of sanitary surveying is completed. In some cases, organizing and developing health services in these stores is now well under way. Records are being standardized and reports are coming in from a number of the most progressive stores. It is proposed in this paper to outline the health aspect of the working conditions in stores; to indicate in general the physical condition of the store workers in these twenty-five stores; to describe the activities and results of the store health departments; finally, to suggest the possibilities of professional usefulness in applying industrial hygiene to this field of community life.

The object of a store is to sell goods at a profit. In storekeeping the stage is set somewhat differently from that in industry. The customer is the real store boss. In one large store approximately one-third of the workers are salespeople who must meet the public. Nearly one quarter of the store force do office work. The remainder are occupied in buying, receiving, marking, altering, packing, transporting goods, besides various occupations, such as window decorating, carpentering, engineering, painting, cleaning and educating. Women predominate about four to one in store work, though this varies much in the different types of stores.

Little time is spent in teaching English to the foreigner, though some is spent teaching better English to the American. A larger amount of formal education is demanded of the applicant to store work than of the industrial operator. Native ability and self-education are gradually giving place as the predominant factors in education among storekeepers. More systematic and more specific education for the job is evident. Inbreeding, promotions from within the store, is preached and is still largely practised by most stores under the name of loyalty. The narrowness resulting is not unlike that seen from inbreeding in college faculties. Most workers have at least a fair wage to begin with and often opportunity to increase it with increased productiveness. Demand and supply largely govern the wage scale.

Working Conditions in Stores

Behind the scenes in stores will usually be found the evidence of the management's estimate of the value of sanitation and hygiene within legal limits. The management's estimate of the public's demand or appreciation of these health measures will be found in the public selling spaces. Altruistic customers often write the management concerning lack of ventilation or the provision of seats for salespeople.

It is hopeful to find new store buildings reflecting modern sanitary knowledge. Store sanitation varies, then, partly in accordance with the legal limitations and with the age of the building, but chiefly with the management's opinion of hygiene. Store physicians seldom have had time or inclination to concern themselves with sanitation. Such things have usually been delegated to the engineering department. In a previous article[1] the usual faults or omissions have been pointed out in regard to ventilation, overcrowding, lighting, locker rooms and toilets, unnecessary fatigue due to improper seating[2] and incorrect shoes[3], elevator service, store cleaning and dust.

The sanitary situation, however, may be summed up as follows: Working conditions in the twenty-five stores studied are, in general, good. There are defects in nearly all stores, but sanitary conditions with the possible exception of improper ventilation are not, in my opinion, one of the major causes of the large amount of ill health found among store workers. The major causes of disability have to do in a large measure with the individual vigor and health of the workers, with their health habits, their health opportunities and their health intelligence.

Employees' Physical Condition

The physical condition of the employees of stores, as judged by the standard set by college men and women, is, with some exceptions, far below par. The impression is gained that most store people lack a large reserve of physical strength and resistance. This impression is confirmed by the large number of those leaving for ill health, those absent on account of ill health, and the surprising number coming for health advice to the health departments in the stores.

Physical standards for store workers are lacking. A few stores have been making physical examinations for varying periods. Other stores are preparing to examine all applicants and give periodic re-examinations. Satisfactory standards of vigor as well as absence of defects remain to be developed.

Kellogg[4] of Pittsburgh reports the findings from over 1,200 store workers by age groups, 95% to 99% showing from one to five defects. Contrasted with this the report of Lee[5] on the incoming class at Harvard College and the School of Business Administration, a total of over 1,200 men, showing only 5% having defects. Both observers attribute the physical conditions, bad and good, to preventive medicine, its lack and its results. One emphasizes the lack of health habits and health knowledge. The other attributes success to the training by intelligent parents and school health work. The chief cause of store ill health, we believe, is lack of correct early nutrition and training in health habits. In all fairness the college men must be considered a selected group, but they strikingly illustrate the possibilities of preventive medicine and good hygiene.

Store executives represent the key men and women of the enterprise. Their health cannot safely be excluded from medical supervision. The "nervous breakdown" due, I believe, to fear and worry, rather than over

*Read before the American Conference of Industrial Physicians and Surgeons, St. Louis.

1. Common Sanitary Defects in Stores, Journal of Industrial Hygiene, May, 1921, iii, No. 1, pages 29-36.

2. A Work Chair, Journal of Industrial Hygiene, Sept., 1921, iii, No. 5, pages 154-158.

3. Foot Notes, Service Bureau for Popular Health Information, 3 Joy Street, Boston, Mass.

4. Kellogg, Journal of Industrial Hygiene, January, 1922, iii, No. 9.

5. Dr. R. I. Lee, Professor of Hygiene, Harvard University, Cambridge, Mass.

work, is too prevalent to await carefully detailed study to disclose its frequency. There is little doubt that the causes and prevention of much of this nervous exhaustion as well as other physical ills will be discovered as our vision is extended to store health work.

The Dennison Company in its factory in Framingham, Mass., has already demonstrated the value of health work with its executives and has developed a successful method of medical supervision. Here is a fertile field for physical but especially mental hygiene with promise of profitable results.

Accidents and acute illness are usually provided for according to legal and humanitarian requirements in stores of one hundred or more workers. The idea of a modern store health department, similar to the best in industry, as a business asset has not as yet been accepted by storekeepers in general. A good number of the most farsighted merchants, however, have accepted this idea and are engaged in developing the best administrative methods. These methods vary from what is commonly known as the "one man store" methods to that of the health department managed and at least partly financed by the Mutual Aid Association. The health problem in stores naturally pertains less to accidents and more to illness than in the industries. The quantity of work in well developed store health departments may be illustrated by Chart I.

Chart I. Comparative use of nine store health departments as of March, 1922, showing total population, total visits to health department, new cases, and revising.

Illness Classification

The classification of cases coming to the store health departments has constituted a progressive study. A daily report sheet with the chief complaints recorded by the nurse was the first step. Next came the grouping of these complaints according to frequency. Chart II illustrates this grouping for the month of March in one store with a population of about 3,500 people and a total number of new cases of 1,495 for the month. Three were 1,210 diseases, 159 industrial accidents, 126 other injuries, and 1,051 revisits—making a total of 2,546 health department visits and 412 home visits.

The professional medical opportunity in stores is comparatively small if looked at through the eyes of the conventional doctor, whose standard of satisfaction is major medical or surgical care. Such a man would say "tiresome trivial routine." Few pneumonias, typhoids and abdominal operations will fall to his personal care.

To the man with medical acumen and administrative skill, however, there is a large opportunity to be of service in a store. He will father a group of workers who need temporary relief and steering advice with follow up, together with health supervision, and education. He will find many common colds, backed by a variety of nose and throat conditions, treated with home remedies reflecting the hesitating and vacillating voice of the medical profession on this subject supplemented by the free advice and tasty prescriptions of the drug clerk. The upper respiratory tract costs these workers and the store much time, money, and vitality.

The next commonest group of complaints are those of malnutrition and indigestion. The problem is largely one of health education in an adult group. To replace haphazard personal hygiene in an industrial age group with sound health habits will require knowledge, tact, and salesmanship. The group of "Nervous System, Functional" is a real opportunity for intensive study. Fear, worry, and anxiety may be found often in an exaggerated form in stores both among the humble and the exalted.

Here, too, in stores, lies a professional opportunity to study the very beginnings of disease. Patients come freely to store health departments on store time if they receive sympathetic,

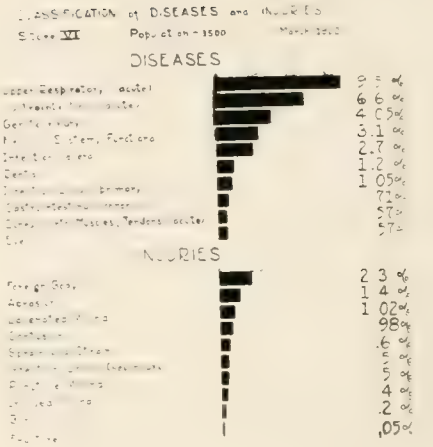


Chart II. Classification of diseases and injuries in a store with population of 3,500.

intelligent care. They wish to learn if their annoying symptoms mean beginning preventable illness or are transitory and self-limited. To sift these cases wisely, dispensing health education with relief, requires that the doctor and nurse not only be students of disease and human nature but also health educators.

The coach of a foot ball team develops the highest type of team work. The store management faces this problem of team work among a group much more difficult to coordinate. The success of the enterprise depends directly on the amount of intelligent coordination developed. A large and important part may be played by the intelligent store doctor.

Early industrial and store medicine, confining its activities largely to covering the accidents and emergencies, remained as an outside accessory. The health department, which not only covers emergencies, but seeks to prevent illness, to protect from disease, and to build a vigorous, aggressive store force trained in health habits must be a vital part of the management, a force co-ordinated with employment, education, engineering, and selling. The human machines are the most complicated machines in the store to keep running. To select, to fit in, to adjust, and to improve these men and women in the store organism is the real function of mercantile hygiene.

Abstract of Discussion

Dr. H. W. Stevens, Boston Mass.: The attempt to evaluate the physical capacity of workers has apparently not attained the certainty of result for which we have hoped. Physical examination has been proclaimed as

the cornerstone of all intelligent medical work. Contrasted with the slipshod clinical methods which most of us have at some time observed, the simple information to be obtained by gross examination without laboratory facilities or other refinements is of incomparable value. Those of us, however, who have made and observed the practical results of examinations of large groups, in spite of some striking individual benefits, have grown progressively disappointed. To many of us, I suppose this disquieting suspicion came first during the crisis of pressing need for military effectives. A classical illustration of this fact is found in our war experience with cardiac disability, nowhere better presented than in Dr. Thomas Lewis' little book "The Effort Syndrome and the Soldier's Heart." The theme of this book is in substance that much is to be found in the way of symptoms traditionally charged to heart disease without demonstrable heart defect; and that there is also considerable demonstrable cardiac defect without disabling symptoms. The logical conclusion, which has stood the test of practical experience, is that *performance in the final criterion of disability.*

The experience of industry also seems to be leading us toward some such conclusion, for the admission seems inevitable that the determination of gross anatomical defects or even of physiological deficiencies does not effectively grade men from the viewpoint of industrial efficiency. Dr. Roger Lee in a recent paper discussing physical examination of Harvard students says "in many ways the results of physical examinations in industry have been disappointing—the results of physical examinations do not seem at present to be stated in terms that enable us to appraise the personnel as exactly as the material assets of industry can be appraised." There seems at least a very strong presumption that it is not the defect alone that disables a man but what he thinks about the disabling effect of his particular physical ailment. "Industrial disability," which, as I take it, in its simplest terms means failure to perform on account of physical impairment, is at present a confusing complex of actual physical defect, together with many other factors, social, economic, psychic, arising from the man's industrial relations. We are all familiar with individual cases in which we have been morally certain of simple failure to accomplish masquerading as physical disability.

To furnish absolute proof of this is often difficult. Our records, however, show some suggestive figures—those relating to illness "lefts" and "returns." We have prepared charts presenting the numbers of illness "lefts" and "returns" in the Jordan-Marsh Company over two corresponding periods at opposite seasons of the year. The "return" curves show conspicuous oscillations with peaks corresponding to the first working day of the week. The number of returns on the last three days of the week are relatively insignificant. The "left" curves show less conspicuous depressions falling fairly regularly on the second working day. From all we know of disease incidence and recovery there is little reason to believe that there is a cyclic fluctuation with a seven day period in the restoration of physical condition to working efficiency. It is probable that a searching physical examination to determine fitness to resume work would reveal no such result as the "return" curve on our chart. "Beginning the week right" is a common remark among returning absentees. "Tuesday begins my pay week" is very common. The generous benefits of a Mutual Aid Association doubtless are a factor.

Need for Precise Standards

A relatively brief experience with industrial workers is productive of numerous other equally striking phenomena less capable of graphic representation. The "functional nervous" classification mentioned by Dr. Emmons is one of these. Thus far we have done little toward the analysis of this group, although at present these complaints represent one of our most expensive losses. In fact we even suspect that the larger portion of our illness disability falls in this class and is not to be demonstrated by ordinary physical examination.

The sum of our observations to the present points to the urgent need of physical standards more precise in their reference to physical fact, also embodying something that our present gross standards lack, and at the same time translatable into language that industry can understand and apply to its processes of production and merchandising.

I fear we are prone to become "highbrow" in our attempts to adapt our medical knowledge to actual health needs. In our work in Boston we are doing our best to keep our feet upon the earth and at the same time to keep at least one eye upon the stars. We are working at present with clumsy tools but are looking forward to a more practical method of grouping morbidity facts—a classification to be evolved only through the accumulation of widespread experience in practical needs. Such a classification, we believe, will be one that shall present each diagnosis as a physical fact which in itself shall point in one direction to a definite meaning in terms of physical impairment and in the other to an assignable cause with which it shall be the task of prevention to cope.

The opportunity for community service is one of which we know too little. About two years ago I began my venture in industrial work with a brilliant vision of the possibilities. Those of us whose lot is the daily routine know now that community hygiene in the full sense in which we conceive it is still but a fair ideal. In the direction of its fulfillment, however, we can see certain fairly definite tasks to be accomplished. There is before us much patient give and take in coordinating our efforts with those of the private physician, hospital, and other agencies. There are years of adjustment in which we must wrestle with fundamental questions of the ethics and economics of medicine in the communities. Much more must be learned about the real causes of impaired health and disabilities before the preventive measures of our ideals can be formulated and applied.

America's Medical Dean

Dr. Stephen Smith of Morrisania, N. Y., who at the age of one hundred years has again been honored by his Alma Mater, Columbia University, conferring upon him at the 185th commencement the honorary degree of Doctor of Science. Dr. Smith was the founder of the American Public Health Association and [illegible]

Heart Disease in Industry—Border Line Cases

The Hope of Prevention Lies in Early Recognition and Complete Adjustment to Cardiac Difficulties

By CADIS PHIPPS, M.D., Associate Professor of Medicine, Tufts Medical School, Boston, Mass.

DURING a recent study of the different diseases and conditions causing incapacity in workmen as shown by the cases examined for the Massachusetts Industrial Accident Board, as the impartial physician appointed under the Act, I found that more than one-third of these showed either definite disease of the heart or some derangement in its functioning sufficient to cause symptoms. These figures, of course, do not apply generally. The type of case reaching the impartial physician is, in the first place, incapacitated, and second, there is some question as to the diagnosis, or prognosis, or causal relationship to the occupation. However, heart disease is a far too common condition, playing perhaps as serious a part now in our public health as tuberculosis. There are approximately 150,000 deaths yearly due to heart disease in this country and although we have no extensive statistics, it would seem fair to estimate that 2 per cent of all adults have definite heart trouble, if we may judge from the number of rejections because of this condition in the Army and among applicants for life insurance.

Because heart disease may be distinctly benefited by proper treatment, either by relief of symptoms, by prevention of increase in its severity, or at least by making this increase less rapid, it is obvious that not only should all cases be under supervision, but also that they should be recognized as such at the earliest possible moment. The question naturally arises, then, as to what means we possess for this early recognition and treatment. In the first place, we may institute routine physical examinations of all men seeking employment. This, however, not only fails to solve the problem, but is open to certain criticisms. The usual routine physical examination is not understandingly made and in it the stress is apt to be placed upon the more obvious lesions—although they may be of small import—and so cause the rejection of a healthy, capable workman because of a comparatively harmless murmur or functional irregularity. Furthermore, such examinations are prone to overlook the obscure or borderline cases. Granting that an employee receives a routine examination at stated intervals, it is quite possible that cardiac disease may manifest itself in the interim.

The examining physician who is alert for early signs will discover many borderline cardiac cases amenable to treatment. It is especially important in this group to observe the patient as well as the disease, removing all causes of undue stress, whether physical or psychic.

The individual reaction of the patient is to be determined, and his activities planned well within the limit of the heart's ability. It is not the obviously damaged heart that suffers from neglect so much as the obscure, borderline case.

It is of importance, therefore, not to depend on routine examinations, but to have some means of recognizing cardiac difficulty as soon after its onset as possible. As a means of doing this, industrial physicians should investigate all illnesses or incapacities with a clear understanding of what symptoms suggest cardiac difficulty. The diagnosis of a severe "cold" or bronchitis may perhaps, on investigation, prove to be some degree of cardiac decompensation with resulting cough, expectoration, and dyspnea. The statement that the employee's feet have been "bothering" him may depend upon the edema of a failing heart. "Gas," a common lay diagnosis, may in reality prove to be abdominal enlargement due again to heart disease. "Rheumatism" or "neuritis," involving the left chest and arm, may be the pain from sclerotic coronary arteries, or, more commonly, the complaint of "indigestion," with a history of attacks of epigastric discomfort, when occurring after middle age, should always suggest angina pectoris.

Besides the investigation of such symptoms and incapacities, the time-sheets and efficiency records of modern manufacturing plants will often be of suggestive value. Hand in hand with the loss of heart power goes usually a corresponding loss of working ability, nor is this surprising when we consider how dependent are our activities upon the circulatory system to meet varying conditions. The suspicion that some cardiac lesion may exist in an employee calls for a careful physical examination, bearing in mind that many cases may be so obscure as to pass unnoticed unless all the means at our disposal are employed.

Not only may initial cardiac lesions be difficult of recognition, as mitral or aortic endocarditis which may show little more than a roughened sound, but also some of the other lesions may be slight in degree, or, because of the cardiac reserve, may be overlooked, particularly if the patient is not exercised so as to throw strain on the heart's action. Auricular fibrillation may be demonstrated often by observing the different pressures registered by the individual beats during a blood pressure estimation, as will pulse alternation; fatty or fibrous degeneration of the myocardium may, in the absence of other lesions, such as a fibrillation, be demonstrable only after exertion. Heart-block, if slight, may require instrumental means for diagnosis. The recognition of coronary sclerosis will almost always depend upon a careful history of the patient's symptoms. One of the most obvious and common conditions—simple arhythmia, with premature contractions—is apt to be misleading; usually functional and dependent on nerve disturbance, it is distressing and alarming to the patient and, if purely functional, will be decreased in degree by exercise.

It is of interest to note that the two commonest conditions, mitral regurgitation—forming 40 per cent of my cases of heart disease occurring in industry—and the simple arhythmias—forming 15 per cent—are the lesions usually most easy of recognition, but relatively the least harmful, as 72 per cent of the cases of mitral regurgitation were not incapacitated because of their heart condition and practically all the cases of simple arhythmia with premature contractions would be benefited by exercise.

Apart from the question of what heart lesions may be perhaps difficult of recognition, or where there may be

a question of the degree of impairment, there is still the large group of borderline cases, where the heart's ability to perform its duties under working conditions, and the prognosis of the lesion, is to be passed upon. There are certain diseases, such as aortitis and heart-block, which will tend to become worse because of an underlying disease, even if the heart be rested as much as possible. Under the best therapeutic conditions mitral stenosis tends to increase in degree with increasing damage to the heart muscle in most instances. Other heart lesions may suddenly cause death from an acute dilatation following exercise, or, as in a case of coronary sclerosis, emotional as well as physical stress may prove fatal.

Tests of Cardiac Power

However, of more importance than the mere diagnosis of a specific lesion is the determination of the heart's ability to do its work, and what its reserve power is, and it is to this end that much of our attention should be directed. Many methods of determining this have been devised: different exercises, with a comparison of pulse rate, blood pressure, intensity of the murmur, size of the heart, etc., before and after the exertion. Vital capacity of the lungs has been used in conjunction with these. No one of them, and no one group of them, is suited to every individual case. The muscles which are particularly fitted to do certain work because of long training will perform their duties with less exhaustion and less wear and tear on the heart than would be the case if untrained, poorly developed muscles were called upon. The Army test of cardiac power, consisting of hopping on one foot, will mean less exertion and less dyspnea and rise in pulse rate to the toe-dancer than to the blacksmith and, conversely, the lifting of a twenty pound weight ten times above the head will not prove an accurate criterion of judgment of the degree of cardiac injury in the blacksmith.

To obtain the best idea of the heart's condition, particularly keeping in mind that what we wish to get is not a name of some lesion, but rather the amount of work which the heart can do without injuring itself, we must combine most of these methods of functional examination and correlate them with the symptoms as obtained in the history, as well as the patient's general physical condition. It is an advantage, also, particularly in planning for the future of the patient, to test out the effect on his heart of such muscular exertion as would be needed to carry on his own vocation.

If, thus, we have been able to pick out those employees who have some degree of heart damage, and if we may, as suggested above, form some estimate of what may be expected of them under their usual working conditions, two duties fall upon us. In the first place—the easier problem to attack—we must protect the industry. For economic reasons, we should not allow men to attempt to fill positions for which they are unfitted because of some heart lesion: they should not be allowed to do poor work, nor should they undermine their health in attempting to do good work. They should be refused work which overtaxes their heart's strength. Opportunity for sudden or violent exertion —or perhaps extreme emotional stress, in some cases—should be removed, and the employee should be warned of such danger. Our second duty, to the employee, must consist in trying to relieve his cardiac condition in so far as possible, and this entails arranging his work with the idea of giving him *less* than his heart is able to do without injury. This may mean lighter work, work of a different kind, or perhaps complete rest. Of great importance in the recognition and perhaps the prevention of the borderline case is a knowledge of what conditions enter into its production. The specific diseases—rheumatism, syphilis, diphtheria, scarlet fever, hyperthyroidism—are common causes of heart trouble, and so should be treated with this fact in mind. Arteriosclerosis and chronic Bright's disease, with or without arterial hypertension, almost always have some harmful effect upon the heart, and so in selecting work for such patients, the increasing cardiac embarrassment must be taken into consideration. Certain poisons, such as lead and arsenic, may play at least a part in the production of heart disease, and, besides our prophylactic measures, this fact would suggest more frequent and careful examinations of workmen engaged in their manufacture.

Exercise Often Beneficial

It is obvious that the heart cannot be rested completely as can other muscles of the body; it must continue to work that the individual may live. We may relieve the heart of some of its work, however, by complete physical or bodily rest. This should be done for all acute or decompensated cases, and should be of sufficiently long duration. Complete physical rest is the common treatment advised for the obviously pathological heart. Sometimes, however, it not only is unnecessary, but it may occasionally be of distinct harm to the patient. It is well established medically that certain of the arhythmias rest upon a distinctly neurotic basis and that the more apprehensive the patient becomes from noticing the condition, the more marked the condition tends to grow, thus forming a "vicious circle." To label such a patient as "cardiac" and to advise his giving up all work involving exertion, as is often done, is distinctly harmful, because it tends to make him introspective; such a heart would not be in any way injured by vigorous exercise, and the confidence the patient would gain on perceiving the absence of ill effects from exertion would go far towards relieving his condition.

Besides such purely functional disturbances, very many of the cases of heart disease will obtain benefit from some degree of exercise. An injured limb must be rested at first, but after a time the curative process will be hastened if we begin to use this limb. In treating the injured heart, therefore, there should be allowed an ample period of complete rest (in my experience, this period is usually far too brief) but which should be followed by a gradual return to working activity, never reaching the stage where the work has an injurious effect upon the heart, as evidenced by the tests described above.

Conclusion

It is not the obviously damaged heart which is neglected; it is the obscure, or borderline, case. A borderline case is oftentimes more amenable to treatment than the established or long-continued lesion, and so may be benefited if recognized. To determine if an obscure heart lesion be present, it is usually not sufficient to depend upon a routine physical examination; a careful history of the symptoms and a consideration of various etiological factors, combined with several physical tests, must be employed.

Besides protecting the industry, the employee's health must be of prime interest. His interests are best served in regard to cardiac disease by (1) removal or preventive treatment of possible causes; (2) earliest possible recognition of cardiac disease; (3) complete rest for a sufficient period of time, followed by (4) a gradual return to working conditions, never reaching the limit of the heart's ability.

Clinics for Industrial Workers

At a meeting of the Industrial Relations Committee of the Philadelphia Chamber of Commerce, with representatives from industrial, medical, and surgical organizations held recently, a plan was developed to establish modern medical clinics to handle ten thousand workers in Philadelphia whereby all employees of the industries in the city may have the same attention in cases of injury or illness as is possible in the establishments which maintain first class clinics of their own. It is estimated that with these clinics the expenditure of large sums now spent on compensation will be eliminated, that many lives will be saved, and that much invalidism resulting from injury will be avoided.

Eyesight Tests in Industry

Under the auspices of the Federated American Engineering Societies, an investigation to determine the extent of defective eyesight among children and industrial workers will be conducted throughout the United States, with the object of sight conservation. This investigation will be conducted by the Council on Eyesight Conservation with the assistance of local health and educational officers. The Council has reported that only one-third of the twenty-four million school children receive adequate tests of vision.

ASSOCIATION LETTER

By WILLIAM ALFRED SAWYER, Secretary

THE Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons, held in St. Louis May 22-23 has passed into history. It was well attended. One hundred and two registered. Many dropped in for individual papers who did not register. The number who registered is approximately one-sixth of the membership—a very remarkable showing. If the membership of the American Medical Association attended its annual meetings in such numbers it would be difficult for any city to accommodate its conferences. This bespeaks a genuine interest on the part of our membership and augurs well for the future. The papers together with a digest of the discussions will appear in successive issues of THE NATION'S HEALTH.

At the Annual Meeting held in Boston in 1921 it was recommended that the name of the Association be changed and shortened to "American Association of Physicians in Industry." This was put into the form of a proposed amendment to the constitution and presented to the annual meeting in St. Louis, where it was promptly voted down so that the name of the association remains the same as it has always been.

From time to time the question of increasing the membership dues in order to care better for the expenses of the Association has been brought up, and it was revived again this year. The meeting could not increase the dues at this time as it necessitates changing the constiution and by-laws but it did the next best thing—levied an assessment of five dollars per member for the current year. You will hear more of this later. The financial affairs of the Association have been in a somewhat precarious state for some time and to enable us to get clear of certain obligations and adequately care for secretarial and other expenses, this assessment was made. It is hoped the membership will respond readily.

After much discussion by the Board of Directors and by a Committee appointed to consider the Association's future policy in regard to an official journal, it was decided in open meeting to discontinue relationship with any journal at the termination of the present arrangement and, beginning January 1st, give our Publication Committee free rein in placing our material where it may reach its largest audience and do the most good. This, in view of the larger interest and opportunity ahead, seems wise for the present.

The following officers and directors were elected for the ensuing year: Dr. C. E. Ford, New York City, president; Dr. Loyal A. Shoudy, Bethlehem, Pa., first vice-president; Dr. Donald B. Lowe, Akron, O., second vice-president; and Dr. Wm. Alfred Sawyer, Rochester, N. Y., secretary-treasurer.

The newly elected directors are: Dr. L. G. Harney, St. Louis, Ill.; Dr. P. K. Brown, San Francisco, Cal.; Dr. C. D. Selby, Toledo, O.; Dr. Harry A. Mock, Chicago, Ill.; Dr. Wade Wright, Boston, Mass.; and Dr. T. R. Crowder, Chicago, Ill.

ANNUAL REPORT—SECRETARY—TREASURER, MAY 22, 1922

When the affairs of the Association were turned over to the present Secretary-Treasurer, June, 1921, there was a balance of cash on hand of $639.78. Today, after a year unusual in many ways, there is a balance on hand of $682.54. With the balance from the previous administration came some liabilities—bills for stenographic services at the last annual meeting and for the printing of the 1920 proceedings.

RECEIPTS

Cash from previous administration	$ 639.78
Dues and donations 1921-22	1,132.72
Total receipts	$1,772.50
Cash in bank at end of fiscal year	267.54
	$1,504.96

DISBURSEMENTS

leaving together with checks already received for this year's (1922-23) dues—a balance of $682.50. This, however, is not the whole story. The bills unpaid, listed below amount to $1,154.83.

To NATION'S HEALTH for subscriptions	$ 545.50
Stationery and membership campaign	45.39
Modern Hos. Pub. Co. for 1920 proceedings	563.94
	$1,154.83

leaving a deficit of $472.29.

In view of this fact and the need for more funds to carry on and extend the usefulness of the Association, the Board of Directors have voted that assessment of five dollars per member be asked for. If this is obtained from a sufficient number, and expenses of the Association are vigilantly guarded, another year should show a healthier condition of its finances.

Concerning the other affairs of the Secretary-Treasurer's office, a membership campaign was ordered by the Board of Directors last September which in due time was launched through appeals made to members to do what they could in securing desirable new members. From our own members and others, a list of some seven hundred names of physicians engaged in some form of industrial work was obtained, and from time to time invitations were extended to these men with the result that in a year when most individuals and concerns were not taking on new activities, eighty-three new members to date have been passed on by the Membership Committee, and the drive—if it may be considered such—is still bearing fruit, for a number of applications are under consideration. Others are in prospect, so that we should be able to report in a short time at least one hundred new members as a result of this effort to increase our membership.

During the year past twenty-nine have resigned, so that to date we have 578 members as opposed to 499 of a year ago. The cost of this campaign was $97.31, approximately $0.13 plus per prospect.

What has been accomplished during the past year may be summarized as follows:

(1) We have increased our membership.

(2) We have reduced the number of delinquent in their dues, from 162 as of last June to 62 as of May 1 this year.

(3) We have spent less on salary for the Assistant Secretary (reduced from $75 monthly to $25 monthly).

(4) We have given the members more for their money than they have ever had before—and chief in this has been the issuing bimonthly, through the cooperation of the Conference Board of Physicians in Industry abstracts of industrial medical literature. Generally speaking, these abstracts have met with approval and appreciation. To date we have sent out eight issues of the abstracts and reprints at a cost of nine cents plus per member.

On the whole the affairs of the Association are in a healthy state and the future is promising and this opportunity is taken to thank everyone for his splendid cooperation towards the Secretary's office. The ground work is laid for active and effectual work during the coming year. We bespeak your cooperation.

Canada Restores Her Cripples

INVARIABLY when the subject of the war veterans disability problem comes up, the statement is made that this country might have learned much from the work carried on in Canada. In response to a request for detailed information on the subject, Mr. E. H. Scammell, Assistant Deputy Minister of the Department of Soldiers' Civil Re-establishment, sent a writer for the New York *Times* a summary of the activities of the Canadian Government in connection with the demobilization and re-establishment of members of the expeditionary forces up to December 31, 1921.

One thing must be borne in mind in comparing the work of the United States with Canada, that is, the disparity in numbers. According to the report 595,441 men was the total of Canada's army. Of these 418,052 proceeded overseas. Our numbers were many times that. In the same manner the disability problem of Canada was but a fraction of ours in size. Due credit must, however, be given to the Dominion. Of a total of 51,708 disabled veterans who began training prior to the end of last year, 41,912 have graduated.

Prior to the Great War it had never been considered necessary to provide vocational training for men who were disabled by war. Apart from the payment of a small pension these men were allowed to fend for themselves and often drifted into the ranks of the unemployable. The Government of Canada was the first of the allied Governments to recognize that the retraining of the disabled men at public expense as a definite and necessary post-war problem. A commission was authorized to provide facilities for such retraining and for the issue of pay and allowances while it was in progress. Arrangements were made for the opening of special schools, for the utilization of existing provincial and private institutions and for the placement of men in industry where an intensive apprenticeship to the new trade could be carried out. As an adjunct a special employment and follow-up service was established. Large numbers of disabled men availed themselves of these facilities, the peak of the load being reached in March, 1920, when upward of 26,000 were undergoing training as stated above. The total who commenced training prior to Dec. 31, 1921, was 51,708, of whom 41,912 had graduated. Of the balance, 634 at that date were undergoing training and 9,162 had discontinued their courses for various reasons. These men were trained in 421 separate industries. Follow-up statistics showed that 65.6 per cent were subsequently employed in the work in which they were trained.

Two Policies

At the commencement of the vocational training work two policies were open to the Government:

(1) To take the men and train them in highly skilled trades such as carpentry, printing, plumbing, machinists, etc., which without previous skill in these trades to build upon would have taken from one to three years or possibly more.

(2) (a) If they were skilled in some occupation to build upon that foundation by training in some lighter occupation closely allied to it where former experience might be made use of, or (b) If there was no previous skill to build upon, to train in some occupation, not piecework, where a full going wage could be earned in from six to eight months.

The second method has been adopted as a general principle. Herein lies the strength of the work in Canada, the limitation of the period of training at the end of which a man is sent out to a job. It should be noted that those who received training in age from youths to men of fifty years, in education from the illiterate to the university student, industrially from the lowest grade laborer to the highly skilled mechanic.

An extension of the vocational training privileges was granted in April, 1919, by which those who enlisted under the military age of eighteen years might be trained in industry or in a technical school, college, university, business college or one of the department's training classes. It was realized that a large number of these young men, had it not been for war service, would have become skilled workmen and self-supporting, but that the years they spent in the army had, in many instances proved a severe interruption to their training. It appeared very undesirable to force these men into the ranks of unskilled labor. The number who commenced courses up to the end of last year was 11,587. Of this number, 3,247 discontinued their courses, twenty-nine were still in training at that date and 8,311 had graduated.

To more fully re-establish the men and make them totally independent of outside aid, a law was passed in November, 1919, authorizing the re-establishment department to make loans to certain classes of former members of the forces. The following is the authority which was granted:

> That the Department of Soldiers' Civil Re-Establishment at its discretion to be authorized to advance by way of loan to those disabled men who have been retrained and who are in need of same, a sum not exceeding $500 for the purchase of tools and equipment necessary to establish them in their new occupation, such loans to be repayable within five years from date of issue without interest.
>
> That the Department of Soldiers' Civil Re-Establishment at its discretion be authorized to advance by way of loan to those men who are disabled and who are in need of same, a sum not exceeding $500 to enable them to pursue any course of training or education that was substantially interrupted by war service, providing in all cases that the disability was of such nature as to make assistance necessary and provided further that such men are not entitled to or have not taken training under the Department of Soldiers' Civil Re-Establishment; all such loans to be repayable in five years without interest.

Disabilities Recognized

In order to carry out this authority a special division of the Vocational Branch was created and loan officers were appointed in the various units. Before the granting of a loan careful inquiry is made into the reasons advanced and into the prospects of successful operation. A chattel mortgage, where possible, is secured and arrangements are made for repayment in small amounts. Up to the close of last year 1,801 applications for loans had been approved. The number of different occupations in which men have been re-established under this scheme is 86. In such occupations as plumbing, cabinet making, carpentry, etc., the actual tools required by the journeyman are purchased to enable him to obtain employment at the prevailing rates.

It was early recognized that not only was it necessary to provide medical treatment and training for a returned soldier but that he should be introduced to employment when in a fit condition to work.

As far back as October, 1915, the secretary of the Military Hospitals Commission was directed to prepare

a report on the subject of the provision of employment for members of the Canadian Expeditionary Force on their return to Canada and the re-education of those unable to follow their previous occupations because of disabilities. It was pointed out in this report that all those who returned would be found in one of the following classes:

(1) Able-bodied men for whom the situations and positions they left have been kept open by patriotic employers.

(2) Able-bodied men who were out of work at the time of enlistment or who have been superceded in their absence; and invalided and wounded men similarly situated who will become able-bodied after a period of rest in a convalescent home.

(3) Invalided and wounded men who are unable to follow their previous occupation by reason of their disability but who will be capable after proper training to take up other work.

(4) Men who are permanently disabled and will be unable to earn their own living under any circumstances.

A scheme was outlined for close co-operation between the Federal and provincial governments which resulted in a conference between the Military Hospitals Commission and the various provincial governments being called by the Prime Minister in October, 1915. At that conference an agreement was reached for the creation of provincial returned soldier employment commissions. All the provinces took up this work and each commission was regarded as a sub-committee of the Military Hospitals Commission. The provincial commissions came into direct contact with the returned soldier, his wishes, his causes for complaint, etc., and the officers of these commissions were able to interpret to the soldiers the desires and policies of the Government. They were also instrumental in introducing a large number of men to employment.

Seven Hundred Weekly

With regard to the vocationally trained or disabled men, the department still maintains a special section and its activities have been most successful in finding suitable openings. To the 31st of December, 1921, out of 49,621 applicants 27,885 have been placed, 8,558 are on a waiting list and the balance have withdrawn their names. Notwithstanding the present unemployment situation, the number placed weekly seldom falls below seven hundred. All applicants for employment through this section are graded and special preference is given to those most seriously injured. Close co-operation exists between the department and the Civil Service Commission. Between March 1 and Dec. 31, 1921, 970 handicapped or disabled men were placed in the permanent Civil Service.

Special preference in respect of vacancies in the Civil Service was made an act of Parliament before the armistice. These preferences at once gave the returned man an absolute lien on all positions for which he could qualify. The returned man was not slow to avail himself of the opportunity and vacancies in every class of employment have fallen to him. Not only was this preference accorded by law but the Civil Service Commission utilized every possible means of bringing to the attention of the returned man the opportunities offered him.

That this policy has proved beneficial is clear. Up to December 31, 33,719 men have been appointed by the Civil Service Commission. Of these 10,121 are filling permanent positions.

Together with vocational training, loans and civil service employment, the Canadian Government also offered the returned soldier the opportunity of becoming a land owner. An act was passed in 1917 creating the Soldier Settlement Board and empowering this body to make loans to soldiers who wanted to engage in agricultural work.

There are other ways in which the Canadian Government has aided the returned soldier, pensions, unemployment help, medical treatment, etc., but the plan which has succeeded in rehabilitating him is the broad one which includes vocational training, loans, civil service and farms. Not the least important feature which has made for the success of the movement is the close follow-up work between rehabilitation and employment.

Must Study Chronic Disease

THERE is need for wider specialization on the more common organic diseases and for centers of research so that chronic conditions may receive the careful attention and benefit from the precise methods of attack which are employed in acute conditions, Lee K. Frankel of the Metropolitan Life Insurance Company is quoted by the *New York Times* as saying: The spread of health education, in which the Metropolitan Life Insurance Company has taken an active part since 1909, has been a strong factor in reducing death rates from acute conditions, as have nursing services, and increasingly effective health laws.

The same improvement will mark the more fatal chronicities only when these disorders receive the attention they deserve and become the subject of research. When the people realize that disease commonly believed to be incurable can be reduced toward the vanishing point, as typhoid has been reduced, they will demand that more hospitals be devoted to the treatment and study of organic diseases, and that a greater percentage of physicians and surgeons specialize in the care of these ailments.

Four of the most important organic diseases continue to show a higher mortality than during the early months of 1921. These diseases are cancer, cerebral hemorrhage, chronic nephritis and organic heart disease. The increase for each is small, with the exception of heart disease, the year-to-date rate of which, 150.3 per 100,000 persons, is much higher than for the same period last year, which was 133.3.

The cancer rate is 72.2, as compared with 68.8 for the same period in 1921; the nephritis rate is 77.6, as compared with 74.2, and the cerebral hemorrhage rate for the first months of this year is 67.2, as compared with 65.1 for the same months last year. The death rate for tuberculosis shows a gratifying decrease this year, but this disease still ranks high among the mortality causes. The rate for the first ten weeks of 1922 is 109.0, as compared with 123.1 for this period last year.

The mortality statistics of the period 1911 to 1921 show that these organic diseases, with the exception of cancer, declined consistently, but by no means as sharply as some of the more popularly dreaded diseases. For cancer the trend of the death rate has been upward rather than downward. Consider typhoid, for instance. It seems to be rapidly approaching the vanishing point as a cause of death. Its mortality rate per 100,000 persons among our policy holders for 1911 was 22.8, while in 1921 it had shrunk to 6.6. Influenza and pneumonia combined showed a remarkable decrease as a cause of death in this ten-year period. The rate per 100,000 persons was 131.2 in 1911 and 75.1 in 1921. In cases where medical aid was general and adequate there has been a great saving of lives, there having been 55,000 fewer deaths among our policy holders in 1921 than if the 1911 mortality rate had prevailed. But all the health measures have not reduced the almost steady high death rates for organic diseases to the degree that they have reduced those for acute diseases.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Purdue's Great Student Recreation Center

LARGE enough to accommodate all the needs of the students, yet designed so that it will not stand out more prominently than the other structures on the campus, the new Purdue Union Memorial Building with its basement and two stories promises to be one of the most ideal of its kind in the country. It will be made of brick of a combined color of red and grey trimmed in Bedford stone, the entire scheme blending with the slate roof.

The ratification in February of the plans for the building marked the culmination of two years of work on the part of the Union Committee, combined with the previous knowledge of the architects, Pond & Pond of Chicago, gained in the planning of other Union buildings, notably the Michigan Union.

In designing the building, every need of the student body was taken into account. Before any actual architectural work was done, a survey was made of the needs, both material and social, of the present student body, these results being multiplied by the fractional increase in enrollment for the next ten years. A body of five thousand students, including seven hundred women, formed a correct basis for computation, it was thought. Statistics were compiled recording the number of students fed at each meal at restaurants and boarding clubs in Lafayette, the number who visited confectioneries each day, and the number who took advantage of recreational facilities offered. An estimate was made of the probable number of campus activity meetings which would probably be taking place simultaneously, the attendance at each being considered.

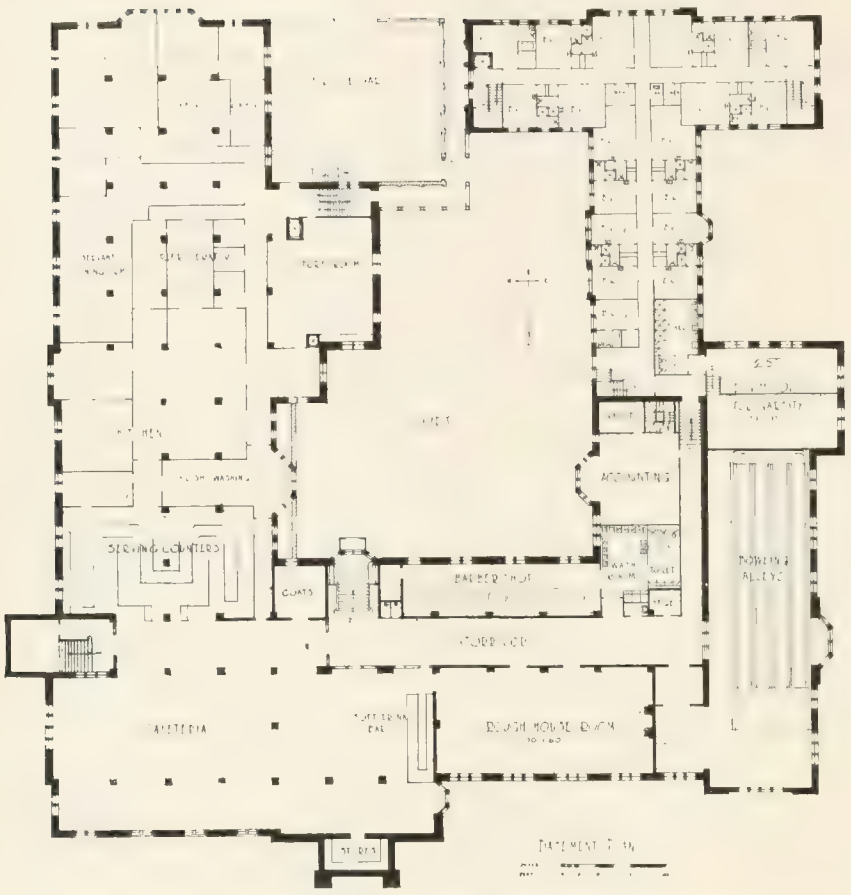
The building has been divided into two wings, the first of which will be built immediately with the total funds available at the time of its completion, while the second will not be added until more money is obtained. Provision has been made for future additions and enlargements in case proposed space is inadequate.

Carefully calculated estimates place the cost of the shell of the first unit at twenty-seven cents a cubic foot, or $401,000, which, of course, will not include fixtures costing approximately an equal amount. The ultimate cost of the first wing will be about $750,000, while the building completed with both units will reach approximately $1,250,000.

The main entrance which is surmounted by a tower leads to the Great Hall and concourse on the first floor. Great Hall, the memorial part of the building, is two stories high giving the effect of the tower. Here will be placed tablets to the memory of Purdue men who served in the war and to those who lost their lives in the service of their country. To the left of Great Hall is the concourse, a general lounging room, from which both the street and the interior of the campus may be seen. On this floor are also included the men's lounging or smoking room and the assembly room, a place which will seat five hundred at a banquet or accommodate three hundred and fifty couples at a dance.

In the basement is the cafeteria which will ordinarily accommodate eight hundred, serving three times each meal and about a thousand at peak loads. The billiard room will contain about ten tables and the bar-

Front and side view of the Purdue Memorial Union Building which will be completed in time for the student activities of the University



Basement plan, showing location of cafeteria, barber shop and billiard room.

men and women, and to provide accommodations for educational, scientific, and industrial conferences and meetings to the end that Purdue men and women may be brought in intimate touch with problems, leaders, and workers in a wide range of activities; all to the end that students, faculty, and alumni may have facilities and be surrounded by conditions and opportunities which tend toward the development of a broader culture, initiative, a democratic spirit, generous rivalry and a zealous love of Alma Mater; all of which purposes and activities shall be educational in character and are intended solely to supplement the education furnished by the University as prescribed in the curriculum."

The Purdue Union was organized by the class of 1912. By 1914, $71,000 had been raised. The fund continued to grow with the coming of each class until the outbreak of the war in 1917. Four thousand and six Purdue men and women served in the war, sixty-three making the supreme sacrifice.

At the close of the war, the Union took on a broader scope and decided to raise funds for the erection of an activity building as a memorial to those men who served and those who

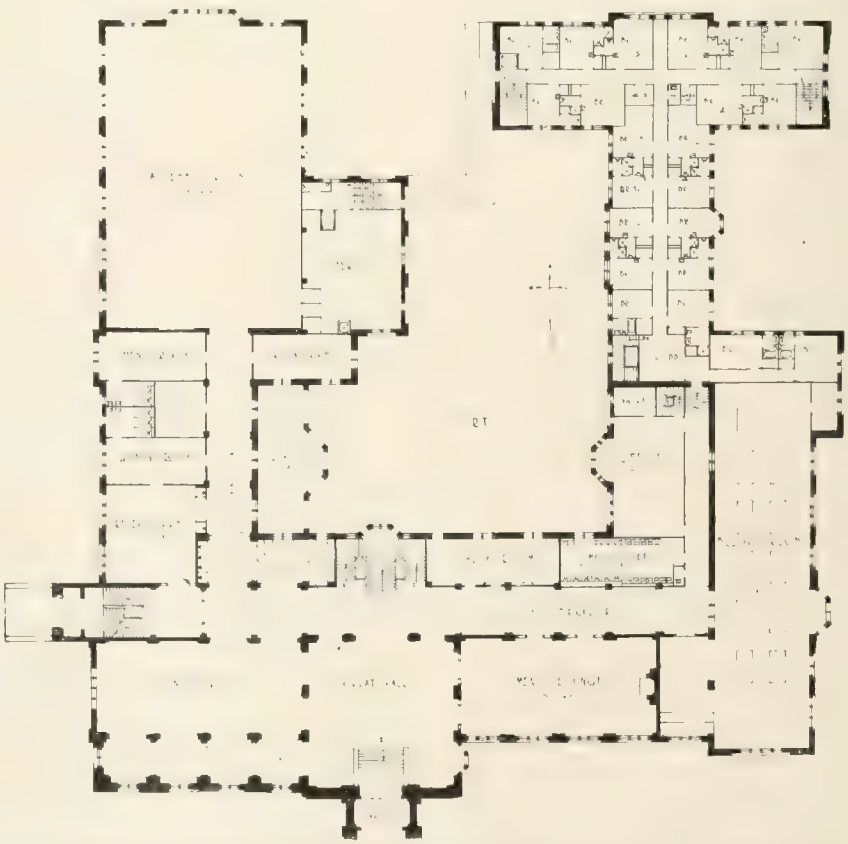
ber shop nine chairs. At times other than meal hours a soft drink stand will be operated in the cafeteria, thus making it continually useful.

On the second floor there will be the women's lounge room, private dining rooms, a large dining and conference room, and space for accommodating all campus activity offices.

A tower room over the main entrance will be used for committees, possibly as a faculty club room, or for whatever else is deemed advisable at the time of completion. It is hoped that the first wing of the building will be completed by January, 1923.

The second or right wing of the structure will contain hotel accommodations for University visitors and alumni, bowling alleys, visiting Varsity dormitories, and an augmented billiard room. There will also be included what is called a "rough house" room in which students may gather to do as they please.

The Purdue Memorial Union was organized with the following purposes set forth in the constitution: "The purposes of the Purdue Memorial Union are to organize the activities of the undergraduates, alumni and faculty; to furnish a social, recreational, and educational center for the Purdue



On the first floor is Great Hall, the memorial hall of the building, the lounging rooms and the assembly where large banquets and dances can be held.

Hotel accommodations will be the main feature of the right wing of the second floor

lost their lives in the war. At the end of that year $800,000 had been pledged.

J. E. Walters, President of the Purdue Union makes the following statement regarding the Memorial Union:

"The Purdue Memorial Union was originally the Student Union. It was started by students and carried on by them up to the war. Under many difficulties they continued the work during the war with the main purpose of bettering the student life through activities and getting a building which would facilitate all the activities. After the war the program took on a broader scope and included a memorial plan which would do honor of a just kind to those who lost their lives and those who served their country during the war.

"Every effort was put forth by the students to make the University 100 per cent Purdue Union members. The results were that 85 per cent of the students are now life members with only 40 per cent of the alumni life members."

Conference of Social Work

THE forty-ninth annual meeting of the National Conference of Social Work was held at Providence, R. I., June 23-29. Robert W. Kelso in his presidential address on "Changing Fundamentals in Social Work" touched briefly on the main problems dealt with in the division meetings,—health, mental hygiene, the treatment of delinquents, industrial problems, community organization, etc. The change of ideals in all these fields is toward the recognition of the spiritual value of the individual, he pointed out, and to the acceptance of the philosophy of responsibility of the community to the individual as well as the individual to the community. The recommendations of a committee in 1912 on "The Standards of Living and Labor" were reviewed by Owen R. Lovejoy, chairman, and compared with present achievements. The problems have not been solved, but a public conscience toward them is measurably developing and we are at least, he assured us, "headed forward to a day when a nation can feed, clothe, and house itself without destroying any of its people or any other people in the process."

In the Divisions of Health and Mental Hygiene important papers were presented and discussions on health in relation to technical matters of social policy came up in several others. Mr. Kelso interpreted the change of ideals in public health to be one of departure from old negative enforcement of health regulations to the present policy of requiring an individual to guard his health as a citizen and as a protection to his neighbor.

Dr. George E. Vincent, speaking on "Underlying Concepts in the World Movement for Health," called attention to the present working agreements among nations in regard to quarantine, purification of drugs, exchange of information about research and administrative problems; and he emphasized the human tendency to get out of focus through absorbing interest in special problems. To correct this we must devise public health measures that are economically possible.

Both in the sessions of the Conference itself and of its kindred groups there was evidence of a growing professional consciousness and a desire on the part of social workers more definitely to determine their professional status. There was evidenced a greater simplicity, courage, and frankness in discussing achievements and standards than has always been apparent in the past; and in the several divisions a timely emphasis was placed on qualifications and training for social work. The American Association of Social Workers, one of the kindred groups, voted to establish professional requirements for membership, and the fifteen hundred members present pledged twelve thousand dollars to meet the present deficit and as a declaration of their ability to finance their organization independently of outside contributions. There are few things of greater importance to the future of social work in this country than the development of a group financially and professionally independent. The Association made definite strides toward establishing such a group by declaring its intention and ability to finance its budget, by limiting its membership to those having professional training and experience, and by ruling out the ancient and unhappy distinction between paid and volunteer workers.

Homer Folks of New York was elected president. The Jubilee Meeting will be held in Washington, D. C.

Facilities for Prenatal Care in Chicago

Summary of a Survey Made by the Chicago Community Trust

By FRANK D. LOOMIS, Secretary, The Chicago Community Trust, Chicago, Ill.

WHAT facilities has Chicago for the care of the sick and disabled? Are the facilities adequate? Are they up-to-date? Are they efficient? The person called upon to contribute might at times complain that Chicago has too many hospitals. Patients seeking hospital care, especially hospital care at a price within the means of the salary-earning group, have frequently been distressed because there was no room. Physicians have criticised the lack of facilities for proper care of particular types of patients. Managers of hospitals have been hopeful for the future, believing that Chicago is rapidly becoming a great medical center with institutions the best to be found anywhere.

A group of prominent physicians two years ago suggested that the Community Trust undertake a survey of the institutional facilities for care of the sick and disabled in Chicago, believing that such a study would bring to light many facts not generally known about the facilities which do actually now exist and would help to bring about improvements and coordinations which would really make Chicago the great medical center which many have hoped it would be.

A preliminary study of the situation made it apparent, however, that a general and sweeping study of the entire field at one time would be impracticable. It seemed preferable, rather, to take up from time to time such special subjects as conditions might warrant—subjects which might seem to be ripe for investigation and to offer some hope for definite results.

The subject of prenatal care in Chicago was the first decided upon, because of its importance and because little is generally known about it. A survey, directed by Mrs. Kenneth F. Rich, with the assistance of Miss Ella F. Allen, R.N., and the advice of a Committee of specialists including Dr. Joseph B. DeLee, Miss Edna Foley, Dr. James B. Herrick, and Dr. R. W. Holmes, has now been completed and published in pamphlet form. The report consists of 102 pages, and is doubtless the most complete and thorough study which has been made on this subject in any American city. It shows that Chicago has some institutional facilities for prenatal care of good quality, but rather meager in amount. It also makes clear that much is yet to be done in standardization and unification, in the special training of physicians and nurses and the development of an understanding public sentiment which will demand good service, before Chicago can be said to have arrived at the consummation of any well-rounded community plan. Chicago is far behind New York, and America is considerably behind European countries in the prevention of maternal mortality.

High Mortality Preventable

The report calls attention to some statistics of the United States Government which show that in this country as a whole more women of child-bearing age lose their lives from diseases caused by pregnancy and confinement than from any other disease or class of diseases except tuberculosis. When the statistics are compared with those for Chicago the same relative prevalence of maternal mortality seems to exist, for in the latest year for which records of the Board of Health are available (1914) it was found that tuberculosis among women of child-bearing age was first, and maternal mortality was second.

The next significant fact is that a great deal of infant mortality is due to causes connected with birth. Official statistics for the U. S. Registration Area in 1919 indicated that 43 per cent of all the deaths of babies under one year of age were from causes related to the natal and prenatal periods. The United States Public Health Service states that one hundred thousand babies in this country die in the first month of life, most of them because of conditions affecting the mother before the baby was born. In Chicago it is stated that 1,428 babies died in 1919 before they reached the age of one year because of "congenital debility and malformations" and that this is 24.8 per cent of all the babies under one year of age who died in Chicago, in that year, this being the second highest of all the causes of death of babies.

Evidence is presented to show that a large percentage of these many deaths of mothers and babies is preventable. This is proved from the statements of leading physicians who have made extensive study of the subject and from the records of prenatal dispensaries or clinics such as are now established in some parts of Chicago and in other cities. It is shown that among the mothers who attend these clinics there is a remarkably low death rate both of mothers and babies. In view of this fact, it is sad to discover that in recent years there has been no general decrease over the country as a whole from deaths due to natal or prenatal causes, although there has been marked improvement in some spots. An accurate statement regarding Chicago is impossible, owing to the inadequate registration of births and deaths, but the figures which are available indicate slight improvement.

The character, quality, and quantity of prenatal center work in Chicago have been carefully studied. The survey found twenty-eight centers or stations in active operation. A considerable group of these is located on the west side near the County Hospital and there is another large group on the south side in the vicinity of Twenty-sixth street east of State Street. The other centers are scattered north and south, north as far as Fullerton Avenue and south as far as East Fifty-first Street. Since the clinics naturally draw most of their patients from their immediate vicinities, it follows that large areas of the city have no institutional prenatal service. The striking discovery in this connection was that in these neglected areas maternal and infant death rates are highest. All of the clinics combined serve a total of not more than 6,000 patients a year, or scarcely more than 10 per cent of the 57,000 cases in the city. The patients are generally those "unable to pay ordinary physician's fees." Seven of the clinics are connected with medical schools and are not supposed to be run solely for the benefit of the patients. In some cases, it is intimated, the service seems to be influenced too largely by this consideration; or the

rooms and equipment provided for the prenatal clinics are sacrificed to other interests of a hospital. Prenatal service, as a standardized and distinct service, is rather new in Chicago, however; most of the clinics having been organized or developed since 1910, and there have been many recent improvements. Nineteen of the prenatal centers have social service departments; and all but three have nurses regularly in attendance with usually one or more graduate nurses who perform a variety of services.

The thoroughness of the service rendered at the various clinics was carefully analyzed. At each of 16 institutions, fifty recent consecutive records selected at random were studied, and the number of patients' visits to the clinic, the number of months under care, and the thoroughness and regularity of medical examinations and instructions were noted. Seven institutions furnished a smaller number of records than 50; while the remainder of 28 institutions (5) furnished none. In the number of patients' visits one institution showed an average number of 4.2 and there were four others which showed an average above 3. The average length of time under care ranged from less than one month up to three months. In number and regularity of urinalyses, one institution showed a grade of 97.2 per cent; there were four which graded above 90 per cent; or six above 80 per cent. In the number and regularity of blood-pressure tests one institution had a perfect record; 4 graded above 90 per cent; 6 above 80 per cent.

The manner and efficiency with which records are kept occasioned some criticism. The adoption of a uniform record blank is suggested, with the recommendation that whatever system is used, it should be regularly followed.

Low Cost for Each Patient

The subject of finances is discussed under the general title, "Fees, Funds and Costs." Under "Costs" it is stated that in Boston, when prenatal care began, the cost was found to be between $2.50 and $3.00 per patient; while in New York it has been demonstrated that prenatal supervision can be carried on at an approximate cost of $2.40 per month for each mother supervised when the work is done entirely by nurses; or $3.50 per month if physicians are employed. This cost included the salary of the doctor and nurse, as well as all overhead. The Infant Welfare Society of Chicago has found that prenatal work, introduced as an addition to an established infant welfare station, costs less than a thousand dollars a year for each clinic. The larger Chicago clinics minister to 300 or more women a year. The cost of prenatal work of most Chicago stations is not figured separately from other dispensary or hospital costs. It has been estimated, however, that the average cost per patient's unit in Chicago's general dispensaries varies from 11 cents in institutions in which costs of heat, light, rent, etc., were not included, to 78 cents in the case of one Chicago dispensary with all such expenses included. "It must be borne in mind, however," the report states, "that practically all of the medical service in dispensaries is given free of charge by the attending physicians."

There is no general policy or practice with regard to payment of fees. Some institutions make no charge whatever; some charge 10 cents to cover cost of registration; some make a flat rate of 25 cents to cover both admission and prescription fee; some request patients to pay fees approximating the cost of private service. Often there is a charge for medicines or for special tests, which when made, are usually on the basis of actual cost, but sometimes higher. It is quite common, however, to waive the fee if the patient cannot pay.

The survey recommends that an effort be made to standardize these fees and the following considerations are mentioned: "First, all the institutions are in need of additional income for the purpose of improving the services; second, the majority of wage-earners are able to pay part of the cost for skilled medical service; and third, there exists a class of patients, chronic invalids and the unemployed, who will be deprived of treatment altogether if the admission fee is demanded in every case."

The subject of pay clinics, operated on a self-supporting basis, is alluded to; but the difficulties of maintaining such clinics without seeming to compete with private practice are not to be overlooked. The recent establishment in New York City of the "Dollar Clinic," by Cornell University College of Medicine which aims "to cooperate, not to compete, with the general practitioner" is cited.

The report concludes, in the matter of finances, that much of the support of institutional prenatal work must continue to come from public or private philanthropic sources, and says that the "unnecessary deaths of mothers and babies at child-birth present a most appealing opening for private philanthropy." The establishment of clinics; the improvement of quarters; larger equipment; more doctors, nurses and social workers; or the endowment of chairs of obstetrics in medical schools and of maternity hospitals with free beds and modern teaching facilities are among the specific suggestions offered. The value of these for experimental and demonstration purposes is considered great.

The amount and character of prenatal care furnished to the 51,000 cases each year which do not come within the service of the institutional stations is not discussed at length because there is no means of determining its extent or quality. Reference is made to the 1920 report of the Health Department of Chicago, which states that of 55,313 births reported that year, 39,468 were attended by private physicians; 15,816 by midwives; and 29 were unattended. The 6,000 or less mothers given prenatal care in the clinics are doubtless included for the most part in the number reported by physicians.

Recommendations of Report

The survey report closes with two general recommendations:

I. That prenatal care be extended to all prospective mothers whom at present it does not reach, by: (1) Education of the public to the perils of childbirth, and their easy avoidance through proper foresight and care; such methods as proved effective in the campaign against tuberculosis being used; magazines, the press, pulpit, paid public lectures, propaganda by health officials, and personal contacts of home visitors; (2) a direct educational campaign among the physicians, through a series of papers on prenatal care and obstetric subjects, in medical circles; (3) persuasion of the hospitals to insist upon adequate prenatal care of all patients enrolling on their books for future confinement, as well as recommendations for establishment of more clinics, with better equipment and staffs.

II. That the prenatal care afforded by Chicago's agencies [illegible] be coordinated and standardized through a permanent prenatal or maternity council, to consist of obstetricians, pediatricians, social service workers, nurses and other public-spirited citizens—a council which shall give consideration to the following phases of the program: (1) A comprehensive "Chicago Plan" for the location of prenatal centers; (2) the prevention of duplication and overlapping of effort through such systems as complete registration with the two

social service clearing houses, and by trial agreements as to districts or types of cases; (3) the maintenance of continuity of individual maternity care, through its antenatal, delivery, and postnatal stages, by a closer cooperation among all physicians, hospitals, clinics and other institutions involved; and other subjects relating to the improvement of the service of the various prenatal centers.

A schedule of standards which may be regarded as a minimum requirement for prenatal work, drafted by a local committee of physicians and nurses, is presented for discussion and possible adoption by all persons or groups concerned in this field.

Air Conditioning in Hospital Sanitation

An Application of Principles of Ventilation to Hospital Practice

By W. DWIGHT PIERCE, Ph.D., Managing Director, Biological Department, The Mineral, Metal, and By-Products Company, San Mateo, Cal.

ONE of the first steps made in the science of sanitation was in the direction of air-conditioning when the demand for pure fresh air became insistent. Through other incentives entirely there has arisen a science of air-conditioning which can give much of value to sanitary and medical science, and we will do well to consider what has been accomplished, what underlies the whole science, and how especially it can be applied in the field of health.

In general, we have known that air overcharged with carbon dioxid is unhealthy, and rules have been laid down specifying the maximum volume of carbon dioxid permissible in public buildings. But the student of air-conditioning now assures us that the capacity of the air to absorb carbon dioxid or any other gas and its danger to human health depends entirely upon the varying factors of temperature, atmospheric pressure, and relative humidity. This fact was especially brought out in the report of the Departmental Committee on Humidity and Ventilation in Cotton Weaving Sheds (Cd. 4484, London, 1909). This report was necessitated by a desire to obtain satisfactory weaving conditions, without too greatly affecting the health of the labor, but its findings did not result in laying down any definite principles upon which a real science of air-conditioning could be built.

To the textile industry probably we owe the first serious efforts to control humidity in industrial establishments, as it was found that without sufficient atmospheric moisture static electricity interfered with the processes, the fibers were more liable to break, and the fabric was not uniform. In fact, two very responsible engineering corporations have built up a large business through the development of systems of air-conditioning, including ventilation, air-washing, humidifying, dehumidifying, warming, cooling, and drying. These systems are the gradual outgrowth of the demands of the textile industry and later other industries of many kinds attained more suitable air conditions for their particular processes. These corporations have by individual plant studies worked out to the satisfaction of their clientele apparatus whereby the various plants have been able to improve the quality of their product, in appearance, or strength, or in some other manner, and much credit is due to them for their pioneer work.

To the textile industry belongs the credit for the first serious efforts to control humidity in industrial establishments. Experiments have shown that each worker has an optimum temperature or practicotatum in which he works with the most comfort and efficiency.

The application of these principles to the hospital cannot help but be beneficial. The problem of conditioning the air for the various diseases, maintaining a temperature least suited to the growth of bacilli and most suitable to the recovery of the patient is one which might well be considered by hospital authorities.

But the field of air-conditioning is broader and more vital than accepted by even these pioneers. It opens up visions of greater industrial health, greater personal efficiency, and possibly a new principle of hospitalization. It is in the effort to bring these new ideas to the medical and sanitary professions that the present article was prepared.

Expressing the basic principles in terms of the sanitarian and practitioner, we may set down a number of theorems which appear to be fairly well grounded at the present time.

(1) The normal physiological functioning of the body requires fresh air, or air not overcharged with carbon dioxid, or any other injurious gas.

(2) Modern industrial practice makes it possible to secure fresh air, or air made fresh by washing, and to maintain it at whatever combination of conditions may be specified by thermostatic and hydrostatic automatic control.

(3) The quantity of carbon dioxid which may be held in suspension in the air with safety to the worker, depends upon the factors of temperature, relative humidity, and atmospheric pressure.

(4) The reactions of temperature upon living organisms can only be correctly thought of in terms of humid-temperature.

(5) At a given temperature the capacity of the air to absorb moisture depends upon atmospheric pressure.

(6) For every living creature, plant or animal, no matter how low in the scale of development it may be, there is a zone of humid-temperatures in which the life functions of metabolism, assimilation, transpiration, growth and reproduction, are at their greatest efficiency. This applies to every cell and organ of every creature, and to every function of the organism. By greatest efficiency we do not necessarily mean capability to do the greatest amount of work, but rather the capability to do the greatest amount of accurate, dependable work, with the least exhaustion, wear and tear. This zone of temperature and relative humidity is what we used to call the optimum, but was renamed the practicotatum by the writer. The practicotatum for man is a zone, more or less elliptical in form if charted on paper, having approximately as its ultimate boundaries 32 and 55 per

cent humidity, and 55 and 70 F. temperature. This zone was denominated by Rosenau, as the comfort zone, for within it we are the least conscious of the existence of air conditions, and feel the greatest sensation of personal comfort.

(7) The factory, school, hospital, office building, church or auditorium equipped with modern air-conditioning apparatus that will maintain throughout the year a fixed condition within this human practicotatum will, needless to say, maintain the conditions most favorable to health, happiness, contentment, and human efficiency. With proper measures for reduction of gases and dusts such conditions are almost ideal. It is no longer an imaginary condition, but an actual reality, and so accurate that by thermostatic and hygrostatic control temperature is held within two degrees and humidity within four per cent by both the leading systems of air-conditioning.

(8) Surrounding the practicotatum is a more or less large thermopractic zone, which in the case of man we may call the zone of practical working conditions, and for other living creatures we may call the zone of effective humid-temperatures. Broadly speaking no man should be expected to work, except for very short periods under factory conditions, at humid-temperatures outside of this zone, which may be roughly described as bounded by 36° and 90°F. and 2 per cent and 85 per cent humidity, with a diagonal axis running from 43°F. and 100 per cent humidity to 78°F. and 0 per cent humidity, elliptical in form with the short axis perpendicular at 63°F. and 43.5 per cent humidity. The curve of the ellipse is tangent upon but does not cross the line of the wet bulb of 70° at 30 inches pressure.

(9) Hospital patients should be kept by all means within this zone, for it is the zone of bodily activity, and how can we expect the healing processes to take place when the air conditions inhibit them? The nearer the patient can be kept to the practicotatum the better. Of course in this connection we must remember that the disease organism also has its practicotatum and our patient must be held under thermopractic conditions least effective for the disease and most effective for the recuperative processes in the patient's own body.

(10) Any condition of weather can be brought into any factory or hospital. Geography and climate have been conquered. If you want to do something which has always in the past been associated with a certain place or climate, you can now do it at home by installing artificial weather. There is no reason for sending a patient to a distant climate, which may be exhausting and enervating and far out of the bounds of effective conditions, when in the hospital in his home town, near friends and the source of funds, he can be kept in a cheerier mood at the most favorable conditions for the curing of his malady.

(11) Surrounding the zone of practical working conditions are subzones of debilitation and discomfort, of sluggishness, of pain and intense suffering (either from cold, heat, dryness, or moisture). Work is often done under these conditions, but it cannot be satisfactorily done, and the health of the laborer is soon impaired. Any condition which causes a feeling of chill, a benumbing, a thirsty or parched condition, excessive perspiration, stifling, depressing fatigue, frequent need of rest, quickened or sluggish pulse, or fever is dangerous to health, and lies within the boundaries of these subzones of debilitation, sluggishness, and pain. Under no circumstances should hospital patients be kept under such air conditions.

(12) Surrounding these subzones is the anesthetic zone or zone of unconsciousness, comprising all those conditions which induce sleep and unconsciousness preceding death. In the lower animals true anesthesia is displayed by the phenomena known as hibernation and aestivation which the writer has shown are one and the same phenomenon. For instance in dry countries, an insect may be in the anesthetic zone throughout summer, fall, winter, and in fact through several years, with extremes of hot and cold weather, and will only awaken when the necessary humidity brings the air conditions within the zone of effective humid-temperatures. With man the anesthetic zone is very dangerous but we see it in people who fall asleep in the cold (rhiganesthesia), or who collapse from thermoplegia or heat stroke, and are while unconscious in a state of thermanesthesia. The human death zone (olethric zone) is very close to the anesthetic zone and its position depends largely upon the individual's physical condition.

(13) A temperature which is thermopractic at one humidity (that is 90 F. at 35 per cent humidity) may be thermonochelic—causing sluggishness—at another humidity (90 F. at 65 per cent humidity), thermalgesic causing pain and fever at another humidity, (90°F. at 80 per cent humidity), and thermanesthetic, thermoplegic or thermolethric, at a still different humidity (witness strokes and death at 90°F. and 100 per cent humidity).

(14) Although 90°F. and 100 per cent humidity brings about stroke and death, such a condition at 5 per cent humidity is not likely below 115°F.

(15) Although 70 per cent humidity is regarded as the best for weaving we must not think that any temperature can be withstood at this humidity, for stroke and death may occur at 70 per cent above 105°; at 100° only cautious work is possible, because of rapid rise in body temperature; at 90° hard work is impossible; and in fact operatives should not be required to work above 82°; at 79° one feels discomfort and perspiration; but below 75° there is little or no discomfort in ordinary clothing; at 65° to 70° the best weaving is done in England; at 60° English weavers are satisfied; at 50° to 57° best work is done in New England; below 37° a sense of chilliness is experienced; below 28° one is sluggish; below 22° pain and frost bite are experienced; and below 10° there is danger of freezing to death unless very active, warmly dressed, and well nourished.

Good Air Increases Health

There is no doubt but that any industry adopting this modern theory of air-conditioning and installing an appropriate system therefor will greatly increase the efficiency and health of its workers, as well as better the quality of its products. Bread made by the new system of air-conditioning is superior in quality, and the same may be said of macaroni, candies, chemicals and drugs, rubber, and chewing gum, and multitudes of other products. Needless to say foods made under sanitary air conditions will be superior also from the sanitary standpoint.

It is not the province of this article to speak of the relative merits of the commercial systems in use, but the purchaser can expect satisfaction if he receives a guarantee that the system when installed will meet his specifications. He should specify an air-conditioning system that will enable him to control both humidity and temperature automatically in any room or throughout the plant, at any fixed combination he shall desire; that the system shall be so flexible that the conditions in any room may be set at will by adjusting the automatic controls; that he may maintain different air conditions in different departments at the same time. In the rainy

season the humidity is too high outside and the dehumidifier must rectify this in the plant. In the dry season the humidifier will carry the burden. In the cold weather the heating system, and in the hot weather the refrigerating system will function. In other words the true air-conditioning system has at least four functions—heating, cooling, drying, moistening and to these may be added air-washing and ventilating.

Just what combinations of temperature and humidity are necessary in any department to obtain the best quality and greatest quantity of this quality of product, with the greatest efficiency of machinery and at the least strain upon the physique of the labor, is a question which must be determined by independent investigation in each department of a plant. In the human factor alone we must consider the racial reactions of the employees, the previous environment, the health and the clothing of the individuals. Just as by psychological tests we ascertain the relative fitness of applicants for particular tasks, by thermopractic tests we must ascertain under what conditions the acceptable candidates are most fit and must endeavor to place them at their tasks under such conditions as to derive the greatest amount of efficiency from them.

Finally, without in any way desiring to express an affirmative opinion for or against any present-day system of hospital practice, the writer desires to set to thinking upon certain definite points those who are in better position to know.

(1) Presuming that fresh air is desirable, especially for patients with bronchial and lung diseases, is it true that any kind of fresh air is equally efficient? Arguing merely from personal behavior, the writer feels that raw cold air, supercharged with moisture, and hot stifling air, similarly charged, and intensely hot still dry air may be so depressing that the tissues have no chance to mend. Would not fresh vitalized air of moderate temperature and low humidity be the most desirable in the case of such diseases?

(2) Is it not possible that in fever cases a rapid change of air to give fresh oxygen and remove fever affluvia, maintained at a moderate moist temperature would give better results than uncontrolled air? Or at least, is it not possible that by controlling the air you could find conditions superior to the average uncontrolled hospital conditions?

(3) Would not dehumidification be of great aid in moist weather in the treatment of rheumatic and asthmatic patients?

(4) Is it possible that in diseases with alternating chill and fever the patient's condition might be ameliorated by a control in the opposite direction of the room conditions?

(5) In dealing with diseases characteristic of winter time would not fresh air conditions of summer time be of tremendous aid in hastening control of the diseases?

(6) Does not a patient recuperate faster when the air conditions are most pleasant?

(7) Would the obnoxious hospital disinfectant gases be as necessary if the air was constantly being changed and fresh washed air of suitable temperature replacing it? Would not the absence of these odors be beneficial in the cure of many patients with hypersusceptibility of gases?

A Plea for the Deaf Child

THE English law lays down that the hard-of-hearing child need not attend school until the age of seven. In Scotland deaf children must attend school from five years upwards. A better plan for the ultimate value of special training would be to attack the problem of the deaf child in the home, by the age of two, and every school for the deaf should carry an infant class for pupils from two and one-half to five years, states Macleod Yearsley in his recent "Plea for the Deaf Child," in the pages of *The Lancet*, for the usually deaf child's mind does not begin to develop until he enters school.

It is because the general faculties develop chiefly through and by speech that the deaf child suffers so great a handicap. By hearing the child obtains the faculty of speech, and thereby the language without which he cannot reason clearly. Neglected during the plastic stage of early childhood, he is retarded to a degree that often gets him classified with the mentally defective.

The acquisition of speech may be called the physiological education of the child for it is, indeed, a physiological process. In the normal child, in full possession of all his senses, this physiological education begins practically in the cradle. By means of his hearing he is storing up sensory impressions of speech during every minute of his waking life, and without these the motor mechanisms which produce speech cannot be developed. Only by beginning to educate the deaf child as early as possible can we hope to attain any semblance of automatization in speech. Plenty of bright, intelligent deaf children are now let loose to play in the streets, there wasting the precious early years that should be devoted to giving them the physiological preparation for later education that the hearing child gets without help.

Dr. Kerr Love, the Glasgow authority, is responsible for the good conditions that obtain in Scotland in handling the deaf. He instituted the classes for the little children and has issued a pamphlet of help to mothers in the early training of these children. He considers that special information that will lead to the early detection of these handicapped children should be in the hands of parents, school officers, and especially of dispensary surgeons.

Dr. Yearsley makes a very strong plea for the children who become deaf at a later age from causes which are largely preventable. In these children special education should begin as soon as they are discovered and their deafness is known to be incurable. Otherwise as soon as they become deaf they rapidly lose such speech as they may have already developed. When this happens during the pre-school period, these children come into the same category as the young deaf child, and there may be the same difficulties in discovering him. More than one such case has been known to be sent off to a mentally defective school. To avoid such exigency, Yearsley suggests a simple hearing test which can be made by the teacher when the vision test is made.

Yearsley has fostered establishment in London of special hard-of-hearing classes or centers as a means of generalizing the special educating necessary and of reducing the heavy cost of such instruction. Five such centers are in full working order in various parts of London, all of them meeting with immediate success. They have been used, also, in some parts of the United States. In these hard-of-hearing centers the children pass one-third of their time under a certificated teacher of the deaf, who instructs them in lip-reading, and the remaining two-thirds at lessons in the hearing classes of the school to which the center is attached. In this way they obtain practice in lip-reading and

learn to combine it with what remains to them of hearing. Intelligent pupils make such progress that many of them can be returned to their own elementary schools after six or twelve months in the center.

According to Yearsley, timely interference can prevent a heavy percentage of the acquired deafness of children. He quotes Tomlinson, an American authority, to the effect that 80 to 90 per cent of all cases of acquired deafness in children are referable to disease of the middle ear; in 90 per cent of these the condition is due to extension of inflammation from the post-nasal space, and the most frequent cause of this inflammation is adenoids. A systematic examination of adenoid cases shows that three-fourths of them have some ear affection, and, lastly, the routine examination of the ear in children with adenoids confirms the belief that many of the cases of middle-ear deafness in early adult life originated in childhood in this manner.

Plenty of work is being done on the subject of prevention of deafness, and stores of knowledge are being accumulated; what is now wanted is the spread of this knowledge, so that the public, instead of looking for some heaven sent miracle to restore the hearing sense once lost, will instead devote the necessary attention to the discovery of any possible "residual hearing" that may be made the basis of the necessary physiological education. Especially pitiful are the victims of charlatanism, whose credulity causes them to suspend the processes of education proved by long and practical experience to be the only means of preventing mental deterioration in the deaf.

A Jewish Community Center

A JEWISH Community Center which is serving to acclimate the old-world Jew to America's second largest city is the Chicago Hebrew Institute of which Philip L. Seman is director. In his annual report ending May 1, 1921 Mr. Seman gives much interesting data concerning the Jewish immigrant, his problems and his progress in the land of his adoption.

One of the most startling facts found was that of those who registered for the classes in English 60 per cent were graduates of a gymnasium, college, or university in their native countries. The classes contain Jews from twenty-three countries in Europe and Asia, the largest number coming from Poland, the next from Russia.

From the recreation standpoint, the children's game room located in the basement of the Institute at 1258 Taylor Street is most successful, having had an average daily attendance of one hundred children. Charts on the walls supplied by the National Child Welfare Association and the American Social Hygiene Association emphasize the need of health habits.

Equally popular have been the outdoor playgrounds which are open from 9 a. m. to 10 p. m. daily. The attendance during May, June, July, August, and September, 1921 was 300,225.

Gardening, practised on a small scale, is this year being turned over still more to the children and the entire work of digging, planting, hoeing the gardens as well as harvesting the crop has given to the immigrant children crowded in the city their first inkling of the field of agriculture.

The Institute also maintains summer camps, one for boys at Long Lake, Ill., one for girls at Camp Summit Lodge, Area, Ill., and one at Western Springs for mothers and children. Camp Wilson, the boys' camp, is conducted in connection with the Young Men's Associated Jewish Charities which supplies the camp equipment and all other expenses. The Institute provides doctors' examinations. Three hundred fifty boys between the ages of 12 and 18 took advantage of the two weeks vacation the camp offered. A small fee is charged, $3.50 for two weeks or $2.00 for one, although this is not collected if the boy is unable to pay.

The girls' camp is not so fortunately situated, the personnel being limited to those recommended by the Home Finding Society, The Bureau of Social Service, The Dispensary, The Consumptive Relief Society, and similar agencies. Most of the girls had free fees, paid by the organization and those who did not, paid from $3.00 to $6.00 for the privilege. The director hopes that in the future the girls' camp will be placed on the same independent basis as the boys, open to any girl who wishes to take advantage of the outing. A total of 175 girls, 35 in each group making five groups, attended the camp.

The camp at Western Springs offers a two weeks' vacation to mothers and children referred to the Jewish Aid Society and the Bureau of Personal Service and other similar agencies. This camp is free and is conducted by the Council of Jewish Women who furnish the cost of the entire camp. Five hundred women and children attended the camp from June till September. Daily outings were also arranged. Altogether 2,487 boys and girls enjoyed directed and supervised outdoor vacation privileges.

Over 2,000 men, women, boys and girls registered in the gymnasium classes of the Institute during the year. A physical examination was given to every member upon entrance and participation in classwork was made a requisite to playing in games or on teams. The girls maintained a successful basketball team; baseball games are arranged for the men; swimming classes are provided for both men and women.

A working girls' camp at Loon Lake, Antioch, Ill., about 50 miles from Chicago, offers a vacation to approximately 500 school and working girls. The camp accommodates one hundred at a time for a two weeks' period at a cost not to exceed $1.00 a day for the working girl and little over 50 cents a day for the school girl. The camp has a bathing beach with a frontage of 500 feet; the ground occupied is 500x13,000x600 feet, all enclosed with a fence. There are 22 permanent cabins accommodating approximately six girls in 16 cabins and two each in six. A recreational hall for dances and entertainments is equipped with dressing rooms and stage, as well as offices for the nurse and director of the camp. A permanent kitchen and mess hall and proper facilities for washing are also included. The cost of the camp was $25,000.

The Marion National Sanatorium, formerly the Soldiers' Home, National Military Home, Indiana, is being converted into a sanatorium for disabled veterans of the World War suffering from mental or nervous diseases. Eight hundred patients are now receiving treatment and when changes are completed there will be room for 150 additional men. The sanatorium maintains its own farm, laundry, postoffice, theatre, water works, ice plant, and heating plant. Recreation in the form of supervised athletics and occupational therapy is provided for the men. The staff includes twenty-three physicians, sixty graduate nurses, eleven educational aids, fifteen teachers, and other operative employees.

Rochester, N. Y., Fights for the Children

A Tonsil and Adenoid Clinic Which Has Brought Health to Ten Thousand

By JOHN E. WEBBER, Eastman Kodak Company, Rochester, N. Y.

A TONSIL and adenoid drive in Rochester, N. Y., extending over a period of fifteen weeks and closing with a record of 7,883 operations performed on children under sixteen years of age sets a new standard in organized community effort for improved health conditions. In child welfare activity it is probably unique.

The Rochester Dental Dispensary, the gift of George Eastman, president of the Eastman Kodak Company, built and equipped at a cost of half a million and endowed for nearly two million more, is available to all school children up to sixteen years of age. Such are its far reaching results that the public tonsil clinic of this story was the direct outcome of conditions found in the routine examination of dispensary patients.

The dispensary was opened in October, 1917. The building is a beautiful structure, following simple architectural lines and containing all the most modern dental and hospital equipment.

The importance of a normal functioning condition in nose, throat and mouth is well known in dental science and in the organization of the dispensary an oral surgical department to care for cases not within the strict scope of dentistry was included. This department includes every facility for nose and throat work including the removal of tonsils and adenoids and operations for cleft palate and hare lip, all of which are recognized as correctible conditions.

The tonsil and adenoid drive in Rochester, N. Y., was the outcome of discoveries made at the dental clinic.

The original intention, however, was to operate only on such tonsil and adenoid cases as had a direct bearing on dental development and plans were made accordingly. During the examination of dispensary cases however, many were found to have diseased tonsils which, although not strictly obstructive, were detrimental to the children's general health and which were being neglected by the families. Further inquiry showed the prevalence of this condition among children throughout the city with the number of cases constantly on the increase. The records of the dispensary confirmed by reports from the prophylactic squads working in the schools, by inspectors and nurses under the jurisdiction of the City Health Bureau, agents of various child welfare organizations, and from community nurses as well as the testimony of physicians and nurses, indicated that the number of operable cases had reached alarming proportions.

Breakfast at the emergency hospital the morning following the operation.

The causes of this accumulation were set down to the shortage of doctors in private and hospital practice due to the war, the inability of hospitals and dispensaries since the war to overtake the accumulation, ignorance and indifference of parents both as to symptoms and ill effects of adenoids and diseased tonsils, and the financial inability of families of limited means to pay the fee of a regular practitioner. These conditions gave Mr. Eastman, the founder of the dispensary, grave concern. It was realized that unless the situation could be measurably improved, the regular dental work of the dispensary along preventive lines would be largely negative. The handicap of bad teeth had been removed but the equally deplorable handicap of adenoids and diseased tonsils remained.

Under these circumstances it was decided in the summer of 1920 to organize an emergency clinic at the dispensary. This clinic was the forerunner of the public drive which opened the following Spring. Fixing the quota of operations at forty daily, it was necessary to find dormitory accommodations for eighty patients—forty incoming and forty convalescing. By utilizing lecture rooms, library and trustees' rooms this cot accommodation was found. Children selected for operation were received at the dispensary between two and four o'clock of the afternoon of the day previous. Conveyance was provided.

An advanced case of adenoids discovered by the clinic.

COMPLETE oral hygiene as practised by nurses and other attendants is not only recognized as good administration, but is a necessary precautionary measure adopted by medical directors, superintendents and superintendents of nurses in the safeguarding of patients.

Interest in sanitary, healthy mouths of hospital personnel grows steadily. The subject will receive even more attention in the future.

Colgate's Ribbon Dental Cream does all that a dentifrice can do in cleansing the teeth and maintaining oral hygiene.

A generous supply of samples will be sent postpaid to professional friends upon request.

Medical Dept.,
COLGATE & CO.
Established 1806
New York, N. Y.

One of the ten thousand children who underwent a tonsillectomy.

The routine on arrival consisted of registering, bathing, supplying each child with nightgown, stockings and slippers. Their own clothing was folded in large paper sacks, which on the morning following the operation, were deposited by each owner's cot. Every child was also carefully weighed on arrival and thoroughly examined by the house physician and its condition carefully recorded. After a light supper the children were put to bed in the incoming dormitories and from then until 8:30 or 9 o'clock they were entertained with phonograph concerts and motion pictures.

Beginning at 8 o'clock the following morning they were taken in groups of ten to a waiting room and from there, individually, to the anesthetic room and then to the operating room. After the operation the patient was taken to the convalescing dormitories and there kept the remainder of the day and succeeding night under the care of the house physician and nurses. By 9 o'clock of the morning after the operation all, with the exception of the occasional child detained for observation, had breakfasted and were ready to return home.

A nominal fee of five dollars was charged but in no case was treatment refused through inability of families to pay. In this drive 1,470 children were operated upon between July 26 and September 10.

The complete success of this experiment immediately begot plans for a public clinic on a much more comprehensive scale. The larger project was undertaken by the four city hospitals with the cooperation of the public and parochial school authorities, the City Health Bureau, and the Rochester Medical Association. In January plans were completed and the clinic opened to admit patients.

The annex of the main auditorium of the city was fitted up as an emergency hospital with a capacity of 180 beds and four operating tables, and was staffed by a supervising surgeon, a chief of medical staff, and twenty-seven graduate and undergraduate nurses. The physical examination of the children was conducted by a large staff of surgeons, physicians, and nose and throat specialists. The operations were, of course, performed by specialists. The routine followed closely the details of the dispensary clinic.

The quota of cases assigned to the public clinic was 80 per day or 400 cases a week of five days. In addition a quota of 200 cases a week was accepted jointly by the four city hospitals and the dental dispensary. The clinic was financed by the Community Chest through the hospitals, the city paying the nominal fee of five dollars in cases where the family circumstances did not permit it.

A month prior to the opening of the clinic a survey of the school children was begun and two thousand cases listed ahead. These examinations were conducted under the direction of the clinic and the Board of Health, assisted by school nurses. Every child examined was classified. Those in need of operation were given cards setting forth their condition. These cards they took home for the signed consent of the parents to an operation. Appointment cards were then sent to parents.

Between these two emergency clinics, nearly 10,000 Rochester children have been given a better chance for health and mental development. Periodical examinations are also made to determine the exact value of the operation to the child. Examinations already made on children operated upon at the dispensary show remarkable results. Of the first group of 53 examined, improvement was noted in 50, eighteen of these showing great improvement. All of the fifty made gains in height, weight, and general physical condition. As an illustration, one girl showed a gain of 14 pounds, others of 11 and 10 pounds each. Among the boys one showed a gain of as much as 22 pounds, others of 15½, 14 and 11½ pounds.

The full value of this great experiment in public health none can foresee. To the medical profession it means a much needed opportunity for observation in large groups. To a world of mothers, however, its reassuring results will be watched with a very different interest.

World's Largest Leper Colony

Underwood & Underwood.

Five thousand and twenty lepers inhabit Culion, a little rocky island in the Philippines. They have a nipa shack village, and their municipal government is their own. They have a leper police force, a set of leper city officials and until recently they have been left largely to their own devices. The attention of General Wood has recently been brought to the condition of two hundred children in this community who, though born of leper parents, are themselves free from the disease. It was the original intention of the constabulary to establish a separate colony for them on Culion Island, but on the advice of the Rockefeller Foundation it was decided to convey them to Manila, where they will be placed in an orphanage until danger of the development of the disease has passed.

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Auburn & Geneva, N Y—Dusenbury
Austin—Carl H. Mueller
Baltimore—325 No Charles St.
Battle Creek—Bahlman's Bootery
Bay City—D. Bendall Co
Birmingham—219 North 19th St.
Boston—Jordan Marsh Co.
Bridgeport—W. K Mollan
Brooklyn—414 Fulton St.
Buffalo—659 Main St
Butte—Hubert Shoe Co.
Camden—Curran's, 110 Broadway.
Cedar Rapids—The Killian Co
Charleston—J. F. Condon & Sons
Charlotte—221 Piedmont Bldg
Chicago—4750 Sheridan Rd., Room 214; 30 E Randolph St., Room 502
Cincinnati—The McAlpin Co.
Cleveland—Graner-Powers, 1274 Euclid
Columbia, S. C.—Watson Shoe Co.
Columbus, Miss.—Simon Loeb & Bro
Dallas—Leon Kahn Shoe Co.
Davenport—R. M. Neustadt & Sons
Dayton—The Rike-Kumler Co.
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Easton—H. Mayer, 427 Northampton.
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Fall River—D. F. Sullivan
Fitchburg—Wm. C. Goodwin, 342 Main
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Galveston—Fellman's
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Hartford—86 Pratt St.
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Minneapolis—21 Eighth St., South
Mobile—Level Best Shoe Store
Montgomery—Campbell Shoe Co.
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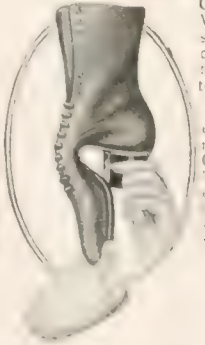

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Role of the Follow-Up Nurse in Tuberculosis

Right Social Contact with Patient Is Secured by the Follow-up Nurse

By MARY E. EDGECOMB, R.N., Supervisor of Tuberculosis Work, Providence District Nursing Association, Providence, R. I.

In considering the "follow-up nurse" in her relation to organized tuberculosis work as we know her today, let us go back and think a little of her origin and development. In the *American Journal of Nursing* for June, 1901, Ruth Brewster Sherman writes as follows:

During the past few years large numbers of tuberculous persons have applied to the dispensaries of the Johns Hopkins hospital whose admission to the wards was obviously unwise and who after a single visit never returned and were lost sight of. To any thinking person those people poor, ill, and ignorant as they usually are, are objects not only of pity, but of very lively interest as being breeders and conveyors of our commonest infection, and each one the center of a veritable circle of danger in his own household and neighborhood, often indeed by reason of the necessity of still carrying on his occupation in spite of illness to people far outside his immediate vicinity.

To Dr. Osler, the medical chief of the hospital, the necessity for putting some limit on this danger seemed imperative and in 1900 he appointed from the third year class of the medical school a student whose duty it was to follow and visit in their homes all consumptives who came to the dispensary. Saturday afternoons, Sundays, and holidays were practically all the time she could give to the work, but the results of her months of efforts were most satisfactory. She had trouble in finding patients owing to fake addresses, especially with the Russians and Hebrews who were suspicious. She visited 199 patients in their homes, seeing them at their daily work, observing habits and surroundings, in each case instructing the invalids and their families regarding essential disinfection and limiting spread of disease. She found the consumptive in meat shops, small dairies, bakeries, cracker stores, sewing, weaving, cooking for sale, and cobbling. Bed-ridden invalids she found on couches in the living room. This year (1901) the work is undertaken with new courage and energy, and a student, also a woman, has begun visiting.

The student's work is of interest to nurses as being exactly what we ourselves might do and what we believe many nurses would be glad to do if the opportunity were given them. Such an opportunity of any definite nature exists nowhere at present, so far as we know, though undoubtedly the district or visiting nurses are able in the course of their general duties to perform a large amount of useful work in this direction.

This, however, cannot be compared in usefulness with the work which might be accomplished were it possible to make provisions for one or more nurses to carry on the special work regularly and systematically.

The three medical students who did this work were: Blanch N. Epler, Adelaide Dutcher, Elizabeth H. Blawvelt. The report by Dr. Dutcher was really what aroused enthusiasm in the home visiting of tuberculous patients.

The years 1902, 1903 and 1904 saw the beginning of such organized definite follow-up work by nurses and Grace Forman of New York, Reba Thalan and Nora Holman of Baltimore, and Elizabeth Upjohn of Boston stand out as pioneers in the field.

The description of the famous lung block in a report of the Committee on the Prevention of Tuberculosis of the Charity Organization of New York for the year 1902 stands out as a classic. It was one of the most congested wards in New York City. The report says: "The lung block alone holds nearly four thousand, not to mention dogs, cats, parrots, and one weakened old monkey. Of the humans, some four hundred are babies. It is a block packed close with high grimy tenements, dark rooms lighted only by air shafts, consumptive patients doing home work." Case after case is cited where almost entire families were wiped out by tuberculosis. The report says: "In the past nine years alone this block has reported two hundred and sixty-five cases and this according to doctors, druggists, and others who know is but half the true number." It all reads like a tale of some eastern country, not a story of New York only twenty years ago.

In a measure these same conditions were found everywhere by the first nurses. Perhaps, not such congestion, not so many nationalities crowded in one block, but the same story of the desperately sick patient exposing an entire family, the same hopeless acceptance that tuberculosis was inherited, and entire families must die. The cry of the nurses was for milk, eggs, and hospital beds for the sick consumptive.

We have traveled a long way since that time. With the forming of the National Tuberculosis Association in 1904 began a definite campaign against tuberculosis, a campaign broad enough to include the building of hospitals and sanatoriums, the estab-

"No matter what our contact with the patient in the clinic, in the sanatorium, or in the office, we never know him or can intelligently advise him until we see him in his own environment and know for ourselves his family and grasp some of the things that have contributed to his breakdown."

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"If we believe that adult disease is the result of childhood infection, then we should spend a great deal of time working with the children, teaching health habits, instructing parents about diet, following school children to see that the recommendations of the school doctor are followed."

lishment of fresh air schools, a campaign of education, and the follow-up nurse has had her definite place in that campaign.

Home Contact Is Cornerstone

The character of the work has slowly changed, has become more and more educational, but one thing stands out now as it has through the years—the contact with the patient in his home is the cornerstone in which all constructive tuberculosis nursing is built. No matter what our contact with the patient in the clinic, in the sanatorium, or in the office, we never know him or can intelligently advise him until we see him in his own environment and know for ourselves his family and grasp some of the things that have contributed to his breakdown.

There is the early case, the sanatorium case. Perhaps here we do our most satisfactory piece of follow-up work. First, we visit the homes after the diagnosis has been made either at the clinic or by the private physician. A patient who has just been told he has tuberculosis and must go to a sanatorium, no matter how tactfully this may have been done, is frightened and usually is willing to promise anything, but when he gets home and begins to think what it means to go away, he sometimes loses his courage, or fails to see how it is a possible thing because of family cares. Perhaps some neighbor comes in and tells him discouraging tales of the sanatorium or the advantages of some patent medicine. Then it is the nurse who is able to explain at greater length what the clinic doctor has said, explain it in terms he and his family can understand. It is his salvation to be made to realize what tuberculosis is, and what the sanatorium has to offer him in the way of treatment and education. If he does not see it, then we must still follow for there is always a psychological moment in the life of an early case when he can be made to see if we are only there. We give him an accurate picture of life at the sanatorium so when he does go he will not come flying home because it is so different from what he has thought it would be. We can help him to make a plan for his family if necessary, advise him about his outfit so that when he gets there he will have what the others have. We are all dependent on custom and many a patient has been made unhappy when he arrived at a sanatorium because his outfit, while perfectly good, was irregular.

After getting our patient to the sanatorium, we must turn our efforts to the family. If he has been the bread-winner and he has a dependent family, then a definite plan must be worked out with the charity organization and this plan must include adequate relief. The family must be examined for no really constructive plan can be made unless we know the physical condition of everyone.

The nurse is the link between the home and the sanatorium and either by visit or letter must keep the connection between the patient in the sanatorium and the family at home. All of the time the patient is away we must be educating the family so that when he comes home it will be to a family that knows all we can tell about sanatorium treatment, rest, fresh air and food, who will, therefore, be ready to understand and help, not a skeptical family unwilling to change in any way the routine of the home. When the patient comes home, an arrested case, we must still follow to see the kind of a job he gets, to see that he goes at regular intervals for examination to the clinic or doctor, to see that he does not work too hard, or play too hard and so lose any of the results of his valuable sanatorium treatment. We follow the suspicious case—no case needs us more—we gather all that is possible in the way of information to take back to the physician. It is not easy to diagnose tuberculosis, and patients in a doctor's office or in the clinic do not always give an accurate picture. The home setting and time are needed that we may get the history of old contact he has not realized, the clear picture perhaps of an old indefinite illness, typhoid or pneumonia, that lasted a long time, malaria or some other illness that was so labelled in his mind that he thought it had no bearing.

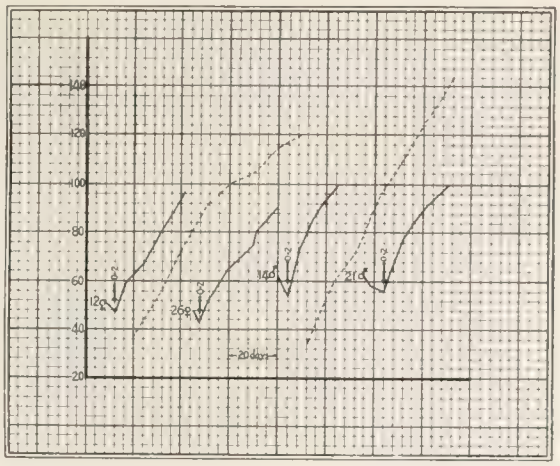
Social Value of Nurses' Work

On the other hand, we may find a social condition in the home that could explain symptoms that seem very like tuberculosis. If the social condition is adjusted and in the words of Dr. Emerson the patient is "free to gain," we may be of assistance to the medical man in making a diagnosis of "not tuberculosis."

We follow the advanced case. The advanced open case is a source of danger and should be in a hospital, but many times he does not go. Then we follow very carefully to give him the bed care he needs and to teach him to be the least possible danger to others, to teach the family how to protect itself.

This is no easy task. It takes many visits, a great deal of teaching to get a family to understand even the first principals of the cleanliness that means safety. While we care for the patient, it is really the family we are chiefly concerned with and perhaps it is in the long, patient following of these contact families that some of our best work is done, even if there is a negative examination for the entire family during the time of immediate contact. We, who follow families, know that the months or years following the death of the breadwinner are hard. The burden of financing a family falls on the mother or the death of the mother throws the care

A comparison of Fleischmann's Yeast with the laboratory standard as concerns vitamin content



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The dotted lines show the normal growth rate of albino rats. The heavy lines show the growth rate of the rats when fed Fleischmann's Yeast.

SOME valuable vitamin studies have been recently made with Fleischmann's Yeast. The albino rat was the experimental animal used in a series of tests carried on over a period of three and a half months.

Altogether 99 rats, young and sleek, of from 60 to 80 grams, were used. They were given a standard diet from which only the vitamin-B was lacking. After a certain decline in weight due to lack of vitamin-B, Fleischmann's Yeast was added to their diet. The yeast was fed moist but on a dry weight basis. The rats always ate the yeast greedily. Their subsequent growth rate indicated the value of this yeast as a source of B-vitamin.

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Fresh yeast has therapeutic value entirely aside from its vitamin content. For full data on this interesting study, send for the recently published brochure on the manufacture, chemistry, physiology and therapy of yeast. This book is distributed free to physiological chemists, physicians and hospitals. Address THE FLEISCHMANN COMPANY, Dept. Y 7, 701 Washington Street, New York City.

of the children on the oldest girl and the family slips down. The resistance is lowered and infection flares up. The nurse who follows these families must have the social sense in that she must have some plan for the betterment of every family she follows. The influence of a nurse, an educated, trained woman, visiting a family sometimes for years, has a tremendous influence. In no other form of public health nursing work do we have quite this opportunity.

If we believe that adult disease is the result of childhood infection, then we should spend a great deal of time working with the children, teaching health habits, instructing parents about diet, following school children to see that the recommendations of the school doctor are followed. If fresh air schools exist, more intensive work is possible in a school where the health of the child is, perhaps, the first consideration.

The clinic is an important part of tuberculosis work and to be truly successful must be a happy combination of a good medical man who knows tuberculosis and who is interested in patients, and a good active nurse who is alive to the possibilities of a clinic. In the first place, it is the nurse who in a great measure feeds the clinics for it is the nurse going into the home who urges the contact case to go for examination from time to time. A contact case left to himself would never perhaps realize the importance of examination, certainly never the importance of re-examination if the first were negative.

The clinic itself offers many possibilities. While waiting for the doctor, we can get acquainted with the new patient, let him feel the personal interest, and pave the way for the home visit we will probably make. We can talk to the old patients, sometimes the doctor is too busy to listen to all these troubles and it does them good to talk them over with the nurse who can pass on to the doctor in a word all that is of importance. After the patient has seen the doctor we can be perfectly sure he understands what has been told him, so that he knows how to use the sputum bottle and when to come back. All clinic cases must be followed to their homes to pass on to the family the word of the doctor, and much may be gathered from the family which is of value to the clinic doctor.

Difficulty of Reaching All

If we look over the death returns each week and visit every family where there has been a death from tuberculosis we open up a whole field of information. In no other way can we determine more accurately just what percentage of the tuberculosis cases are being cared for and the reasons why they have not been referred to us. It makes a good basis to work from. We realize that never will we have 100 per cent of all the cases perhaps for some of the following reasons: (1) Some patients have gone on and worked until almost the moment of death and have never gone to any doctor long enough for him to make or follow a diagnosis. With the growing industrial nursing work and the routine examination of employees it would seem as if this class of patients might be reached. (2) There are the patients who die in general hospitals with acute meningitis or peritonitis, the children, and when these histories are taken we find many times there has been no known exposure, only history of acute illness in an apparently well child. These cases never will come to us. (3) There are the non-residents, who merely happen to be in the city when they die. (4) There is the transient, the lodger who rooms around, the man who, given an infection, his very mode of life makes it impossible to escape. We sometimes wonder how much the disease has helped to make him just the sort he is. If more were known about tuberculosis in its earlier stages such men would seek medical advice, and have a chance to get better, or at least have the hospital care that would mean food and shelter while they are in the more advanced stages. (5) There are the few cared for by the private duty nurse. (6) Then we find the family just waiting for us to come in, the badly exposed, contact family, the family with whom we do our best work.

In a study made in Providence an interesting fact stands out. A far greater number of the patients followed by nurses die in a sanatorium or hospital than those not followed. Of the patients who died at home known to the nurses 45 per cent had had sanatorium care at some time while of those unknown only 10 per cent had had any sanatorium treatment.

Follow-up Opportunities

Perhaps the follow up of men rejected in the draft turned over to the tuberculosis association to be followed will stand out as a national recognition of the value of follow up work. Many things were learned from it. It was unfortunate we did not get the names earlier so that every man could be located. In Providence only 79.6 per cent of the cases referred were located and I think these figures are not unlike those of other cities. The number of men with tuberculous hips and spines seemed large, but more significant was the fact that all of these men were more or less handicapped and only a very few had skilled trades. Their deformity dated back to childhood. With our more careful follow up work I trust we are offering more to our handicapped children today.

The Influenza gave us another opportunity to follow many families; 1½ per cent of the 1805 patients we visited were found to be definitely tuberculous; 3 per cent more were very suspicious, many of the suspicious cases have cleared up, some went on

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to positive diagnosis. In both draft and influenza surveys one appreciated what a routine examination would mean. We did not get so many new patients from these surveys but they did give us the opportunity to enter many homes and tell why we were there, and as much of tuberculosis as we could in a short time. We can only hope the educational value of our work was worth something although that, like much of our work, is of such indirect value that it is impossible to measure results only the years will tell.

To be a good follow-up nurse requires the best a nurse has to give—a nurse with a vision to see ahead of the work accomplished to the ideal she hopes for—a nurse who reads and studies, for what we know today about tuberculosis changes tomorrow or the day after, and the emphasis is laid today on this phase of the work, tomorrow or something else. She must know human nature for nowhere do we see more of all that makes up the character of a man than in the test of tuberculosis. She must know how to teach and teach simply that all may understand. Indications for 1921 are that the death rate will approach 100 per 100,000. In a few years it will be a disgrace to any community to have a death rate from tuberculosis of over 30 per 100,000, says the National Tuberculosis Association. That is setting a high and should spur us on to harder, better work than we have yet done. We are glad that we as public health nurses going into the homes of the people may have our share in what Dr. Lyman calls the "winning fight."

Special Educational Needs of Children

Emphasis is placed by Dr. Sanger Brown, 2d, in the *New York State Journal of Medicine* on the psychological needs of school children, intellectual and nervous handicaps not being as readily appreciated as are physical defects. More than seven thousand children are taken yearly to the Children's Court in the city of New York on charges of disobedience, truancy, thieving, and vagrancy. Truant schools and probationary schools are inadequate and, while they provide special courses, satisfactory handling must include the determination of the clinical types to which these children belong, and curricula must be sufficiently flexible to be definitely prescribed if preventive measures are to be effectual with difficult children.

James L. Fieser to Red Cross

James L. Fieser, recently appointed Vice Chairman of the Red Cross in charge of Domestic Operations was elevated to that position from the position of Manager of the Southwestern Division. Previous to that time, Mr. Fieser had been Associate Director of Civilian Relief at the Washington Headquarters. He began social work as Attendance Officer of the City of Indianapolis, went from there to the superintendency of the Associated Charities, Columbus, Ohio, and thence as director of the Cleveland Division of the Red Cross during the early part of the war.

Physical Plants in School Medical Provision

The existence in the schools of London of a heavy percentage of children presenting more or less falling away from normal physical standards is emphasized editorially in The *Lancet* as an argument for improvements in school buildings—the classrooms, the public offices, and the playgrounds—the claim being urged that unsatisfactory surroundings have an important bearing in the production of and in unfavorable pressure upon constitutional defect. Certain it is that the physical plants of schools in themselves often constitute ordeals which the normal and tough subject may weather, but which may prove disastrous to less sturdy specimens of young humanity.

In this connection Dr. Addison considered as undesirable economy certain proposals to cut down by 20 per cent the grants to the School Medical Service, which would limit not only medical centers but would affect unfavorably the organizations for physical training and the serving of meals.

The discussion of matters marked for economy brought out the unsuitableness of many school buildings for their purpose. Cost what it will, even in times demanding the utmost economy as to expenditure, it is hazardous and uncalled for to lay less stress upon the importance of lighting, ventilation, and furnishings for the premises of schools. The standards of sanitation and decency must be rigidly maintained. Where the health of the children demands structural improvement of school buildings, the worst features should be dealt with at once and continuous effort made in the direction of improving the physical plants of the schools.

Malnutrition and the Scales

The use of the scales in nutritional clinics, fully discussed by Frank L. Rose, clinician, Michigan Department of Health, in the May issue of *Public Health*, must be checked up by other observations. The use of the scales as a regular and consistent measurement of nutritional progress is recommended, but emphasis is placed upon the graphic charts of normal growth measurement and the interpretation to be placed upon departures from the "average."

Dr. Rose has adopted the method of assigning relative values for a one hundred point diagnosis: (1) General appearance as to vigor and alertness, 25 points; (2) Musculation, 25 points; (3) Color or complexion, 25 points; (4); the scales, 25 points.

The scales should be utilized in all cases under continuous observation. Extreme departures from the average are convincing that something is wrong in alimentation or nutrition, whether other signs are present or not.

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Kansas Compares Dietaries

PRACTICAL questions having to do with the relative efficiency of the dietaries of nine institutions, educational and correctional, in Kansas have been definitely answered in "A Dietary Study" recently written by E. H. S. Bailey, professor of chemistry, University of Kansas, and chemist to the State Board of Health. A study was made of the food under normal conditions over a long period. The publication is a condensed tatement which includes a tabulation of the varieties of the goods furnished. The objects of the investigation were to find out as far as possible: (1) Whether the quantity of food used is sufficient for the inmates. (2) Is the quality satisfactory? (3) Are the different nutritives so distributed that there is a sufficient proportional quantity of carbohydrates, fats, and proteins? (4) Is it possible to substitute cheaper foods for those issued and still keep up the proper dietary? (5) Could any other foods be added to the menu with advantage to the inmates? (6) Is there any unnecessary waste in preparing, dispensing, or serving the food? (7) Are all the waste products utilized as far as possible by feeding to animals and in similar ways? (8) Can the variety of food be increased without additional expense?

In the comparison made between the dietaries, a remarkable agreement was found in the calories used at the two hospitals. The energy value of the food served at Lansing prison was found to be higher than necessary, it being 4,780 calories, though it was noted in passing that the caloric value of foods in the Texas prison farms is 5,429 and that of the Louisiana farms 4,196. The Industrial School for Boys, carried a much higher protein diet than that of the Industrial School for Girls, but the proportion was considered right in view of the extraordinary amount of food utilized by the growing boy.

In the matter of costs, on the basis of 100 for the cost of 1913, the schedule of prices has increased to 203 for 1920. The comparison of cost tables, of methods of accounting, both as to costs and as to balance of ration, should be immensely helpful to administrative officers of institutions. The report recommends the greatest of care as to the menus for each day. To serve only starchy food for one meal and overbalanced protein for the next will not satisfactorily nourish the body.

There seems to be more difficulty in the smaller institutions to check up the actual food used per month or per day than in the larger ones. Careful study of the individuals being cared for is essential in deciding what, all things considered, is sufficient. Generally speaking, it is held that great care in issuing supplies serves to cut the aggregate cost, and that intelligent distribution of materials more adequately meets the nutritive needs, certain foods being more plentifully supplied in winter months. The economy of providing abundant milk supply is pointed out.

Home Made Diabetic Bread is Palatable

Perhaps the most outstandingly modern departure in the handling of disease consists in the stress that is being given to the education of the patient so that he can cooperate with the doctors in the treatment. That this is particularly important in the handling of diabetics was brought out in the discussion of Dr. E. I. Spriggs in a symposium on diabetes before the Medical Society of London, and reported on *The Lancet*. During the preliminary laboratory examination of the patient underweighed diet the scheme of diet is drawn up. Carrying out the diet in the home depends, as a rule, upon the patient.

Dr. Spriggs has recently introduced at Duff House a short course of instruction for patients and class demonstration is made of how to weigh certain portions of food accurately and how to make special dishes, including diabetic bread. The scheme includes simple instruction by a doctor in the nature of foods and foodstuffs, food values, the reasons for the dietetic measures adapted in diabetes, and the construction of the patient's own diet. The judicious instruction about diet does away with needless apprehension, for the patient comes to understand that his welfare depends largely upon his own cooperation, and that in such control of his own diet the progress of the complaint is postponed indefinitely.

Most of the diabetic breads offered to the public, with the exception of a few well known brands, either contain a great deal of starch and sugar or are unpleasant to the taste, while all are expensive. Patients, therefore, are well advised to do without bread or bread substitutes altogether, eating boiled greens with meat, and lettuce or tomatoes with eggs. But the need for a bread substitute remains. A particular disadvantage, even with reliable breads, is that they contain a good deal of fat. Dr. Spriggs suggests the following formula for a fat-free casein bread, (Duff House Home-Made Diabetic Bread):

One gallon of separated milk is placed in an enamel dish and warmed, with stirring, to 100 degrees F. A mixture of 1½ fluid oz. of glacial acetic acid and about ¾ pt. of water is prepared and poured into the milk at 100 degrees F., with constant stirring. The caseinogen separates as a white clot. The mixture is left to stand for about five minutes and then poured through muslin placed on a fine sieve for about two minutes, meanwhile working the caseinogen with the hand so that most of the other milk products and acid may be washed away. The muslin containing the precipitate is taken from the sieve, pressed, placed in a bowl of cold water, and kneaded for about five minutes. The water is now changed six times with repeated kneadings each to insure that all traces of milk-sugar are removed from the casein. The washings are to be tested with Fehling's solution. The muslin containing the white material, henceforth called "casein" is squeezed to remove as much liquid as possible, the muslin opened out, placed on a sieve, and left on the kitchen shelf for a few hours to dry. The casein is now rubbed through the sieve on to the muslin and put back on the shelf overnight or until it is perfectly dry to the touch. About 5½ ounces of the casein in this condition should be obtained from one gallon of separated milk.

To prepare the bread, beat up the whites of two eggs to a stiff froth, add nearly two ounces of the above casein, a pinch of salt and a teaspoonful each of cream of tartar and bicarbonate of soda; leveled off, but not pressed down. Mix lightly together, form into cake or cakes and bake in a hot oven for fifteen to twenty minutes. The tin on which the bread is baked should be greased with liquid paraffin. This gives an unpleasant smell to the oven, but the bread has no taste of it.

The casein can be prepared at any time and in any quantity at the convenience of the housewife. It is best kept in a dry place and in open vessels. The bread itself is made in a few minutes by whipping up the casein with the egg white, salt, and baking powder. Sweet cakes can be easily made from it by putting in a little liquid saccharin and some desiccated cocoanut or other flavoring. When freshly baked the well known and objectionable cheesy taste of diabetic bread is less marked in this bread than in those on the market, but it is important that it be made and eaten fresh; this taste develops if the bread is kept long.

The analysis of the bread as served gives: Protein (nitrogen x 6.25) 52.5 per cent; carbohydrate (starch and sugar), nil; fat (ether extract) 0.2 per cent; 20 g. of it give, therefore, approximately 10 g. of protein.

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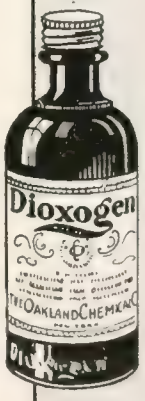

therefore, is universally recognized as the best and most effective peroxide of hydrogen, not alone because of its greater volume of available oxygen, which far exceeds U. S. Phar. requirements, but particularly because of its exceptional freedom from residual substances which would restrain in any way the free release—and full effects—of this all-important constituent.

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FROM THE FIELD

Two public health conferences, one dealing with the production and sale of safe milk and the other concerned with the use of toxin-antitoxin as an immunizing agent, will be conducted in Chicago, July 29 to August 15. The meetings are being arranged by the state department of public health, the regional committee of the International Milk Dealers' Association, and local health officers. The purpose of the conference on safe milk supplies will be the drafting of a model ordinance suitable for adoption by municipalities throughout the country

The tenth annual session of the Pacific Coast Oto-Ophthalmological Society will be held in Salt Lake City, September 14 to 16, the week preceding the meeting of the American Academy of Ophthalmology and Oto-Laryngology at Minneapolis, September, 1921.

The Second Mexican Child Welfare Congress is to meet in Mexico City, January 2 to 9, 1923. Like the First Child Welfare Congress held in January, 1921, it will be under the auspices of *El Universal*, the leading daily paper of Mexico, and the editor of that paper will again serve as president. The Congress will be organized in six sections: Eugenics, medical pediatrics, surgical pediatrics, hygiene, education and legislation. Individuals and public and private associations and institutions interested in child welfare are invited to become members of the Congress.

The Indiana Health Exhibit, held May 19 to May 27 in Indianapolis, was attended one day by 50,000 school children. The exposition consisted of art, science, and government exhibits. Dr. Frederick D. Stricker, state health commissioner of Oregon, and Dr. Paul A. Turner, state health commissioner of Washington, gave addresses.

Louis Resnick, formerly director of publicity for the National Safety Council and editor of the *National Safety News*, has been made a member of the staff of the Safety Institute of America and has moved to New York City to assume his new duties.

Plans for free dental dispensaries in Cook county being formulated by the public service committee of the Chicago Dental society will be furthered by coöperation of one hundred leading dentists of Chicago and vicinity, Dr. Dan U. Cameron, committee chairman has announced. Four thousand Chicago dentists are interested in the movement. It is planned to establish the first dispensary in connection with the county hospital.

The National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C. for the purpose of collecting and preparing material for a great popular public health exhibit to be held in the Smithsonian Institution. The members of the committee include: Surgeon General H. S. Cumming, U. S. Public Health Service, chairman; Dr. D. B. Armstrong, National Health Council; Miss Mabel T. Boardman, American Red Cross; Surgeon General M. W. Ireland, U. S. Army Medical Corps; Dr. Victor C. Vaughan, National Research Council; Dr. C. D. Walcott, Smithsonian Institution; James A. Tobey, National Health Council, secretary. Space for the proposed exhibit has been placed at the disposal of the Committee by the Smithsonian Institution, which is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.

At its annual meeting in St. Louis, May 22 and 23 the Medical Women's National Association elected the following officers: Dr. Grace N. Kimball, Poughkeepsie, N. Y., president; Dr. Kate Campbell H. Mead, Middletown, Conn., president-elect; Drs. Martha A. Welpton, San Diego, Cal., Mary T. Greene, Castile, N. Y., and May Agnes Hopkins, Dallas, Tex., vice-presidents; Dr. L. Rosa H. Gantt, Spartanburg, S. C., treasurer, and Dr. Marjory J. Potter, San Diego, Cal., secretary. Dr. Elizabeth Burr Thelberg of Vassar College was appointed chairman of a committee to form plans for cooperation with the American Medical Association Council on Health and Public Instruction.

Seventy-five nurses from the Pennsylvania Department of Public Health who have demonstrated heroism in epidemics, floods, mine explosions, and other emergencies are taking an intensive six weeks' graduate course given by the Pennsylvania School of Social Service in conjunction with the University of Pennsylvania, Philadelphia.

Because of the growing demand for teachers for the sight saving classes that are being established throughout America and the difficulty of obtaining teachers specially trained for this work, a course for teachers of conservation of vision classes is being given at Columbia University this summer from July 10 to August 18. Miss Gertrude Thompson, formerly teacher of the sight saving class of Worcester, Mass., and more recently engaged in research work in Cleveland, will have charge of the demonstration classes. Robert B. Irwin of Cleveland, the chief inspiration of the sight saving class movement since its inception in America in 1913, will be director of the course and will give a majority of lectures.

A conference on vocational rehabilitation was held in Washington May 26 and 27 by the U. S. Veteran's Bureau which was attended by educators, at least two from each of the fourteen districts in which the Bureau operates, and by representatives from cooperation agencies.

The largest industrial training school in the Near East was opened recently by the Near East Relief on the estate of Prince Burhan Ed-Din, son of former Sultan Abdul Hamid. The school will house 1,300 Armenian orphan children from Anatolia who were deported by the Turks. The trades to be taught will include tailoring, shoemaking, carpentry and farming for boys. Sewing and domestic science will be taught girls. The estate is one of the finest in Constantinople. It has a frontage of a quarter of a mile on the Bosporus, including ten acres of rose gardens. The directress of the school is Miss Emma Cushman of New York, who has spent fifteen years in educational work in the interior of Turkey.

The motion picture theater run in connection with the scientific exhibit of the American Medical Association in St. Louis operated continuously. Sixty different periods of thirty or forty-five minutes duration were scheduled.

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Plans have been made for the establishment of prenatal clinics in the state of Georgia for the training of mothers and the training and examination of midwives in an effort to reduce infant and maternal mortality. These clinics will be established in several cities and counties of the state under the auspices of the child welfare council. Dr. Thomas D. Walker, Macon, will have charge of the work in the Macon district.

New York City officials of the departments of health, streets, and street cleaning have banded together to rid the city of rats. Murray Hulbert, President of the Board of Aldermen, Dock Commissioner John H. Delaney, Street Commissioner Alfred Taylor and Health Commissioner Royal S. Copeland have drawn up plans to protect the city's docks against rats and thus prevent the introduction of bubonic plague into the city through infected rodents. The work of these employees will be to free city property of rats. The board of health inspectors will visit all privately-owned establishments to see that they are free from rats.

Howard University, Washington, D. C., will open a School of Public Health and Hygiene in the fall term 1922 for the training of colored men and women in the field. A School of Social Service and a School of Physical Education, both leading to collegiate degrees, will be within the scope of the School of Public Health.

The Sheppard-Towner Maternity Act has been accepted for the State of Nevada by the Governor, bringing the total number of State acceptances to 42. The Federal Board of Maternity and Infant Hygiene has approved the plans of 33 states for applying the initial funds allotted them under the act. At the annual meeting of the Conference of State and Provincial Health Authorities of North America, held in Washington, May 15 and 16, considerable time was devoted to the discussion of state plans and details of operation of the act, in which Miss Abbott and Dr. Rude, of the Children's Bureau, as well as the state health officers, participated.

Construction of the $2,500,000 medical school of Western Reserve University will begin as soon as labor conditions become settled. The building is the gift of Samuel Mather whose endowments to the university total more than $4,000,000.

Sanford DeHart now has supervision over the employment, compensation, hospital, and safety work of the R. K. LeBlond Machine Tool Company, Cincinnati, Ohio.

The course in practical nursing instituted by the New York Infirmary for Women and Children at the Olivia Sage School of Practical Nursing has been opened at the infirmary in Stuyvesant Square at East Fifteenth Street, New York City. It is different from the usual nursing course in that it is designed to equip students as practical rather than trained nurses. Its purpose is to meet a demand for practical nurses who will be especially valuable in times of epidemic. Practical nurses will also be available to private patients who cannot afford to pay a trained nurse's fee. The course at the infirmary will be of one year's duration as opposed to the three years' study and practice required for a trained nurse's diploma. Part of the fund left to the infirmary by Mrs. Russell Sage has been used to found the new school.

The April number of *Public Health*, the monthly bulletin by the Michigan Department of Health, is devoted to dental hygiene with articles by such specialists as Russell W. Bunting, Alfred C. Fones and A. C. Thompson.

Bleached flour has been legislated against by the New York City Board of Health which adopted a resolution effective September 1 providing that flour bleached with a chemical shall be conspicuously labeled with the name of the bleaching agent. The board is seriously considering the prohibition of the sale of such flour.

The United States Civil Service Commission states that there is urgent need at hospitals of the United States Public Health Service for dietitians and reconstruction aides in physiotherapy and occupational therapy in connection with the rehabilitation of disabled soldiers, sailors, and marines. The Commission will receive applications until further notice for these positions. Applicants are not required to report for a written examination, but are rated upon the subjects of education, training, and experience. Full information concerning salaries and requirements, and application blanks, may be secured from the United States Civil Service Commission, Washington, D. C., or the board of civil service examiners at the post office or customhouse in any city.

The preliminary report of the X-ray and Radium Protection Committee is published in the *New Zealand Journal of Health and Hospitals.*

An 84 page book on "The Prohibition Question Viewed from the Economic and Moral Standpoint," and containing the views of hundreds of manufacturers, bankers, lawyers, physicians, and educators, has recently been issued by the *Manufacturers' Record.* Many manufacturers report less lost time, fewer accidents, less incompetence and inefficiency under the prohibition regime.

Domestic Engineering, Chicago, has recently published a cleverly written illustrated pamphlet on "The Story of the Bath," which traces the history of the bath from the splendor of the Roman Therma down to the modern necessity of porcelain and nickle-plate. The degree of civilization of a country is in proportion to its bathing facilities, so advances the author, Edwin L. Barker. Albert W. Barker drew the pen and ink sketches.

The city of Winston-Salem, North Carolina, for the past three years has conducted a colored baby clinic.

With the realization that industrial conditions are often accountable for the development of tuberculosis as well as the home, Gouverneur Clinic has made a tuberculosis survey of the Gouverneur district, New York City. Cases discovered are referred to tuberculosis clinics near their homes. Dr. N. Gilbert Seymour, director of the Clinic, is in charge of the work.

The New York County Chapter of the American Red Cross has helped solve health inquiries of 11,881 persons during the past year.

The Mothers' Aid Law has been amended by the Massachusetts Legislature in order to make it apply to mothers with children under the age of 16, if such children are required to attend school. Under the old law, aid was granted only to mothers with children under 14 years of age.

Dr. William H. Park, director of the Bureau of Laboratories of the New York City Health Department has been engaged by the Board of Health of Montclair, N. J., to make a survey of methods of handling milk consumed in Montclair and to draw up a new milk ordinance to replace the one now in force.

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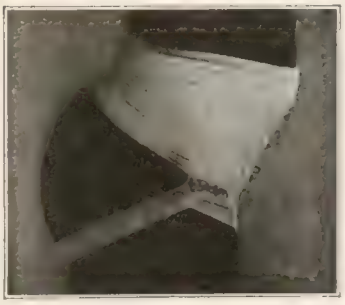

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According to a statement from Dr. Walter Laidlow, Executive Secretary of the New York City 1920 Census Committee, the density in population in certain districts has decreased. In 1910 an average of 453 persons an acre lived on 2,866 city acres while in 1920 there was an average of 300 persons only. Eighteen per cent of New York's population lives on 1½ per cent of its area, a congestion of population comparable with no other city in the world.

Dr. Frank N. Freeman of the University of Chicago has been granted $10,000 by the Commonwealth Fund of New York for the purposes of carrying on research into the educational worth of motion pictures.

A bill recently brought before the French Chamber of Deputies, would provide special coaches for mothers or nurses traveling with children under two years of age. This is intended to mitigate the high mortality of Parisian babies who are sent with their nurses to the country and are endangered by the foul air and drafts from the ordinary day coach.

Headaches caused lost time on the part of 1,255 male and 3,778 female workers, or a percentage of absences due to this cause of 19 for the male and 24 for the female, according to results of an investigation in English factories summarized by Drs. Cobb and Parmentor in *The Journal of Industrial Hygiene.* Causes of headache are ascribed to faulty hygiene, faulty diet, lack of sleep and drinking water. Noise, irritating light, and lack of rest periods are other probable causes.

The Joint Committee for Help to War Devastated Countries reports that in 1921 Denmark entertained 5,584 children from Austria for seveal months, and that since September, 1919, Denmark has cared for 16,456 Austrian children and 5,428 German children. Furthermore, 120 German children needing special care were nursed in a special camp. Gifts of hospital equipment were sent to Austria and Germany, and 40,000 francs was spent supporting a children's home near Rheims. Food and clothing to the value of 70,000 Danish crowns were sent to Germany and Austria and financial assistance for children amounting to 25,000 crowns was sent to Belgium, 33,775 to Poland and 34,500 to France.

The United Fruit Company of Boston has issued its tenth annual medical report showing that the number of patients cared for in the tropics last year was 208,000 of whom 33,000 were non-employees. Methods and treatment of tropical diseases are discussed and a detailed statistical report made concerning their incidence.

The South Carolina mental hygiene survey, authorized by the Governor and conducted by the National Committee for Mental Hygiene under the auspices of the South Carolina Mental Hygiene Committee, has published a report with the following recommendations: The development of an institution for mental defectives with an annual appropriation of $100,000 for five years; the development of mental clinics to serve the schools, courts, and the general community; special classes for mentally defective children; and an extension of the juvenile court system.

Nurses of the Minnesota Public Health Association are to tour the state in automobiles and give in certain counties which have requested their services demonstrations covering tuberculosis work, care and feeding of babies, care of the teeth and general public-health education work. Their equipment includes a motion picture machine, scales for weighing babies, a lifesize doll for demonstration purposes, a sterilizing outfit, and other things for use in demonstrating infant care. Wherever possible nutrition classes will be organized and an effort will be made to interest local organizations in continuing them after the nurses leave.

The Galton Laboratory for National Eugenics has issued two sets of revised weight charts for male and female babies, the first showing how the weight of one baby compares with that of all other babies of the same age, and the second, showing the probable percentage of babies healthier than the given baby when it shall have completed its first year.

Detailed equipment for a base hospital of one thousand beds capacity is listed in *The Hospital Corps Quarterly* by T. J. Murphy, Chief Pharmacist, United States Navy. Equipment listed includes medicines, hospital stores (diet), surgical instruments and appliances, nursing appliances, kitchen and laboratory equipment, laboratory reagents, and chemicals, x-ray outfit and accessories, etc.

The industrial program of the National League of Women Voters adopted at the convention in Baltimore includes the following items among others: An 8-hour day and 44-hour week for women with one day of rest in seven; establishment of a minimum wage commission to fix pay providing a proper standard of health and comfort; prohibition of night work for women six weeks before and after childbirth.

Amendments to the New York State Child Labor Law, passed by the legislature and signed by Governor Miller, provide that vacation employment certificates may be used for after-school work as well as for work on Saturdays and other school holidays (but not after 6 p. m. nor before morning school hours) and prohibit girls under 18 years of age from doing delivery work.

According to the report of the Bureau of Compulsory Education, Philadelphia, for the year ending June 30, 1921, the number of children who left school for legal employment during that year was 6,279, as compared with 7,926 for the preceding year; the number of general employment certificates issued during the year was 15,220, of which number nearly half were issued to children just leaving school. Owing to the scarcity of positions many discharged minors have been obliged to return to regular school; girls in considerable numbers, however, have accepted domestic work in private families, attending continuation school as usual. The policy of the Bureau has been to investigate carefully all private homes in which girls have accepted employment before granting the exemption permit for domestic service.

Classes in lip-reading for "hard of hearing" children have been opened in more than twenty of the public schools of Toronto.

As a part of the service of the Kansas Bureau of Child Research, which has its administrative offices at the University of Kansas, Lawrence, the department of psychology of the University is offering the service of its clinics to parents, juvenile judges, and children's institutions, as far as time and the facilities available will permit. To these clinics any children may be brought who appear to be mentally different from other children and examinations will be given free of charge.

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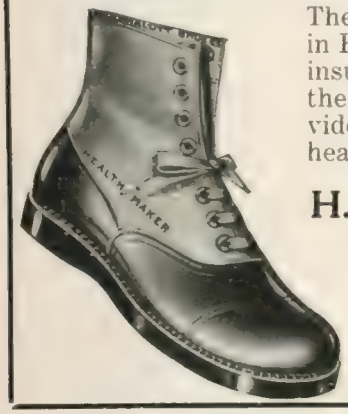

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Cancer and Its Non-Surgical Treatment

"Cancer and its Non-Surgical Treatment" by L. Duncan Bulkley is an interesting book but rather voluminous considering the amount of relevant information that it contains. Statistics abound to the extent that the applicable knowledge is lost in a maze of figures. The assumption, which the author upholds didactically, that cancer is a constitutional disease, is not widely supported. He stresses the dietetic, hygienic, and medicinal therapy, and outlines such treatment. He gives due regard to x-ray and radium but with the expressed belief in the futility of such measures without the proper dietetic, hygienic, and medical regime.

His results are not convincing and though the results from surgical procedures are far from gratifying, his statement "the disease (cancer) can certainly be made to disappear and remain absent under careful and efficient dietetic and medical treatment alone" will require more convincing proof than is now had before being given credance by medical men.

William Wood & Co., New York, 1921.

Tracheo-Bronchoscopy

This book is a translation from the German of Sanitastrat Dr. M. Mann by Dr. A. R. Moodie. Beginning with the historical background, the anatomy is fully discussed, the armamentarium considered, and then follow extensive case histories with bibliography and notes which constitute the text a complete encyclopedia of the subject. Most of the technic described has to do with the removal of foreign bodies, but the author emphasizes the importance of bronchoscopic findings in tumors and general disease conditions of the bronchial system.

William Wood & Co., New York, 1921.

Clinical Methods by Robert Hutchinson

The seventh edition of the next book "Clinical Methods" by Robert Hutchison has many additions and corrections. It starts out with a method of history taking with an analysis of symptoms and a discussion on the more important laboratory methods employed by the general practitioner. The book is written in simple style and is put up in pocket size editions so that it may easily serve as a reference book for the practitioner in medicine.

Paul B. Hoeber, New York, 1921.

Urinary Analysis and Diagnosis

In this admirable book on "urinary analysis and diagnosis by microscopical and chemical examination," Louis Heitzman only those tests are given which can be used to advantage and without the necessity of a completely equipped chemical laboratory and by the general laboratory worker and the general practitioner. The matter is particularly definite in the interpretation of findings. The value of microscopic examination is stressed and great detail attaches to the differentiation between the various types of epithelial cells.

The fairly comprehensive chapter on functional tests is contributed by Dr. Walter T. Dannreuther. The book is an adequate guide to microscopic and chemical method, is well illustrated, and can be fully recommended.

William Wood & Co., New York, 1921.

The Hygiene of the Eye

"The Hygiene of the Eye," a treatise of 331 pages, by William Campbell Posey, M.D., discusses how sight may best be conserved and the relation of the eye to the general economy. He has called to his aid several specialists, Herbert E. Ives, Ph.D., who has contributed the chapter on "Artificial Lighting," Wm. C. Furber who discusses "Daylight Illumination of Rooms and Buildings From An Architectural Standpoint," O. H. Burritt, Principal of the Pennsylvania Institution for the Instruction of the Blind, who devotes considerable space to "The Education and Employment of the Blind" and "Blindness from an Economic and Social Point of View," and Edward M. Van Cleve, late managing director of the National Committee for the Prevention of Blindness, who writes on "The Popular Movement for Conservation of Vision."

For the benefit of physicians engaged in general practice and the public, there is a full discussion of the commoner diseases of the eye, the ocular manifestations of general disease, and how functional ill-health may be caused by eye strain. To lessen the number of accidents to the eyes in industries is the aim of all industrial ophthalmologists. Particular attention is given to the means which have been successfully applied in the prevention of such accidents.

It goes without saying that the book is written in the lucid style which distinguishes all Dr. Posey's literary efforts. The letter press is unusually good; most of the 118 illustrations are excellent, though a few bear the earmarks of antiquity and from a pictorial standpoint, might have been improved upon.

J. B. Lippincott Company, Philadelphia, 1918.

Psychology and Mental Hygiene for Nurses

When a textbook appears which is designed especially for nurses, doctors, lawyers or other professional groups one stops to consider the background of the group which is addressed and the necessity for such isolation. The nurse's training, her literature, and environment are in a way more limited than other groups.

Perhaps no other science has been developed with the rapidity and applied so widely with varying degrees of accuracy as that of psychology. A simple, fair presentation such as is found in Mary B. Eyre's "Psychology and Mental Hygiene for Nurses" shows where the emphasis is being laid, the type of thing that is interesting to the nurse, and her particular problems. The definiteness and discussions could be isolated and criticised as inexact perhaps, but the essentials of recent development in the field have been included.

The author has given a summary of the psychology of nursing as she sees it. "One of the first things to impress itself upon our attention," she states, "is that it lies within our power to form habits of cheerfulness, courtesy, gentleness, courage and truthfulness." Consideration for others, tact, and accuracy in the institution and in the home are emphasized. These principles should be applied not only to the relationship of nurse and patient but to lawyer and client, physician and patient, employer and employee, and others.

The Macmillan Company, New York, 1922.

Abdominal Pain by Ortner

"Abdominal Pain" by Prof. Dr. Norbert Ortner is a book which yields much valuable information. It presents many points that are often neglected or ignored and not a few that are generally unknown.

The authors give, however, no definite plan of differentiation. Statements which concern certain types of pain, their occurrence, and location, in special reference to a particular organ are modified by such a maze of possibilities that the reader is left with a rather vague idea as to the significance of any pain in any portion of the abdomen.

Rebman Company, New York, 1922.

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Bergey's Principles of Hygiene

The seventh edition of a book published first in 1901 has been revised and in many respects brought up-to-date in "The Principles of Hygiene," by D. H. Bergey. Naturally, however, with the rapid developments of recent years in hygienic practice, public and private, and the change of viewpoint of infant welfare, tuberculosis, and water purification, there is a disparity of emphasis between this standard work, which really needs to be in the library of the public health worker, and some of the more recent publications. In the opinion of the reviewer some of the tabular matter could have been subjected to the same careful revision which was given to the text of this valuable work.

W. B. Saunders Company, Philadelphia, 1921.

Sewerage and Sewage Treatment

Until recently there has been a lack of modern textbook covering in one volume the whole subject of sewerage and sewage treatment. The author, Harold E. Babbitt, M.S., here presents a book developed from classroom and lecture notes to meet this need.

About two-thirds of the book is devoted to the design and construction of sewerage systems and one-third to sewage treatment. Briefly, this part of the book on design and construction considers: quality of sewage, hydraulics of sewers, design of sewers and sewerage systems, appurtenances, and materials for sewers. There is a chapter on contracts and specifications and another on pumps and pumping stations. About one-fifth of the book is devoted to a chapter on construction. There is also a short chapter on maintenance.

In the chapter on hydraulics of sewers are given several single page diagrams for the quick solution of the usual formulae. Problems are also worked out in connection with the diagrams to show their application. The design of a sewerage system is well shown by a typical example accompanied by maps and profile.

That part of the book on sewage treatment first considers the composition and properties of sewage. Following this are chapters on the different methods of treatment. At the ends of the chapter on Activated Sludge, and the chapters on acid precipitation, lime and electricity, and disinfection are given good lists of references.

The book ends with brief chapters on sludge, and automatic dosing devices.

The book is well illustrated throughout. Naturally in a single volume covering such a wide field some of the subjects are not fully treated. However, as a textbook, particularly for student use, it is commendable. ROSCOE H. SUTTIE.

John Wiley & Sons, Inc., New York, 1922.

Diagnostic and Therapeutic Technic

The third edition of Morrow's "Diagnostic and Therapeutic Technic" contains many additions and changes. New methods of treatment, new diagnostic procedures evolved since the appearance of the second edition have been incorporated in the new text.

In his book, Morrow has endeavored "to bring together and arrange in a manner easily accessible for reference a large number of procedures employed in diagnosis and treatment." For instance, he describes the technic of spinal puncture; thoracentesis; methods of nerve injection in trifacial neuralgia, sciatica; gastric lavage; proctoscopy; renal function tests, etc. His description of blood grouping is especially adapted to students.

This book is to be heartily recommended to the medical profession. It should be especially useful to the intern.

W. B. Saunders Company, Philadelphia, 1921.

The Condensed Chemical Dictionary

Compiled to make readily available to an inquiring public information concerning the various chemicals and chemical materials ordinarily met with in commerce a "Condensed Chemical Dictionary" has been brought out by The Chemical Catalog Company. The uses of things, the properties of commercial importance, grades, containers, shipping regulations—derivation, methods of purification, the literature has been combed to bring into compact form for secular users all pertinent information. Time-saving elements for technical workers are also served. Important trade and proprietary names are included, which is highly convenient in the identification of materials. The system of spelling used is that of the American Chemical Society. The work is sufficiently cross-indexed to make it a handy volume for daily use.

Chemical Catalog Company, Inc., New York, 1922.

Dorland's Medical Dictionary

We have long regarded Dorland as a desk necessity. Dorland up-to-date in the eleventh edition is a distinct improvement in that the many terminologies that have arisen in the fields of research in chemistry, endocrinology, and neurology are included. The definitions are concise but complete, and the tabular matter makes the volume almost encyclopedic in scope although convenient in size.

W. B. Saunders Company, Philadelphia, 1921.

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Wilder's Diabetic Primer

The publication at the present time of a book such as Russell M. Wilder's "Diabetic Primer," of treatment of Diabetes Mellitus is, to say the least, a somewhat dangerous venture. Even the principles of treatment are undergoing radical change so that the best authorities express doubt as to the solution of the dietetic problem. The "generally accepted treatment today" is not the same as it was when the book was written; hence it may already be labeled as a bit out of date. The diet menus and recipes and the instructions to patients are valuable. More might have been included in the tables of food values.

W. B. Saunders Company, Philadelphia, 1921.

The Blood Supply to the Heart

"The Blood Supply to the Heart" by Louis Gross is a monograph that is a finished presentation of the subject. The ingenuity of the author's technic and his thorough and scientific procedures are praiseworthy. His conclusions are convincing. By virtue of his results, from anatomical, physiological, and pathological angles, many interesting and important clinical points are brought out.

The bibliography is complete. The illustrations are beautiful but lose much of their informative value by the absence of a key.

Paul B. Hoeber, New York, 1922.

Injuries to the Head and Neck

The name of this book "Injuries to the Head and Neck," by H. Lawson Whale, M.D., is rather misleading inasmuch as the entire aspect of the book is that of a laryngologist and orist rather than that of a general surgeon as might be expected from the title.

Lawson Whale discusses the war injuries to the head and neck which involved especially the ear, nose, throat, accessory sinuses and upper air passages. The book as the author himself states in the preface is not a textbook but rather a compilation of certain broad generalizations of advances made during the war.

The reader who expects to find detailed accounts of indications for operation, description of technic and after treatment will be disappointed in the book. The specialist interested in the development of his field will read the book with pleasure.

Paul B. Hoeber, New York, 1919.

Injuries and Diseases of the Bones and Joints

"Injuries and Diseases of Bones and Joints" by Boetger and Waters is a well written, well illustrated book of aid to the surgeon in the interpretation of roentgenograms. The book is clear, concise, and to the point. The authors have omitted everything which does not bear directly on the subject. Physics, technic, therapy are not dealt with. The authors not only describe and illustrate by plates the pathological conditions but tell the reader what to look for, what to expect to see in the plates of the different anatomical regions.

To the industrial surgeon, particularly, this book will be of value. Not only do fractures interest him particularly, but other bone conditions which are not the result of trauma come to his attention because so often these conditions are attributed by the patient to some slight injury.

The general medical profession has long been aware of the need for just such a book, and it is with a sense of pleasure that the reviewer places this volume on a convenient shelf of his library.

Paul B. Hoeber, New York, 1922.

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THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

A Monthly Magazine Devoted to Community Health with Special Reference to Industrial and Institutional Health Problems

Volume IV Chicago, August 15, 1922 Number 8

Recreation—Its Place in Positive Health

Expression, the Main Business of Life, Is Best Acquired Through Spontaneous Play

BY BENJAMIN M. SELEKMAN, NEW YORK CITY.

ONE of the earliest activities of animals is to engage in play. Primitive man sang and danced in obedience to the same impulse which propels the play life of modern man. The play instinct has long been recognized as a normal and primary one, and, although statistics on the subject are difficult to secure, experience offers us substantial evidence of how vital and fundamental is its relationship to health.

It is very interesting to note the physical and psychological effects of the normal expression, or of the abnormal repression, of the impulse to play. The former leads to strength of body and a well balanced mind; the latter prevents natural development.

We all know that exercise builds muscle and stimulates the activity of the digestive, respiratory, and other important organs, but it is perhaps not such common knowledge that a normal amount of play aids the body in throwing off poisonous toxins which accumulate as the result of overwork, fatigue, and worry. Because recreation affords immediate relaxation, pleasure, and happiness, physicians have long since recognized its therapeutic value in the treatment of persons suffering from nervousness, overwork, mental breakdown, or general physical and mental debility. Systematic exercises and games are frequently used to overcome physical defects in children and in adults. A striking illustration of this is the extensive use of this method in hospitals where ex-service men are undergoing treatments for the restoration of totally or partially disabled organs. M. Froissart, France's eminent specialist on children's diseases, reported in July, 1921, to the Academy of Science that he had successfully treated nervous diseases affecting the respiratory and digestive organs by encouraging patients to sing. The deep breathing entailed has the effect of stabilizing the function of the sympathetic nerves.

Amusements Do Not Recreate

Someone has recently said that "recreation is no longer merely desirable for our pleasure; it is physiologically necessary in order to retain normal equilibrium in the midst of the deadening monotony and excessive strain of the common life of today, both in the city and in the country."

This need constitutes our leisure time problem, a problem which would not exist if we were all wise enough to plan and carry out a well balanced recreation program in the hours that we are free. As a matter of fact, relatively few people have enough training and knowledge to "recreate," as it were, wisely. Because of the serious modification of our habits of life by the basic industrial nature of our civilization, we need assistance in securing opportunities for the normal and healthful expression of the play instinct. We are very apt to mistake mere amusement for recreation. Dr. Charles Loomis Dana, professor of nervous diseases at Cornell Medical College, points this out in an article in THE NATION'S HEALTH for June, 1921, when he says: "It takes a special training to live a life of leisure and amusement wisely. An extra hour or two of rest might mean opportunity to drink, gamble, go to cheap shows, or to engage in any number of other profitless and joyless occupations. That same time spent in really playing baseball, golf, or tennis, or in enjoying music or reading, would surely yield a greater return to body and mind."

Misuse of leisure time, in Dr. Dana's opinion, is responsible for many nervous disorders which come to his attention. For the young, recreation is insurance against nervous trouble. He believes in organized recreation, holding that "intelligent and constructive planning is necessary to safeguard the individual against following the line of the least resistance, and against aimlessness of attitude that leads nowhere except in the direction of disintegration."

"Recreation is the positive phase of the health program." Though our practice of its principle is yet far short, America is so fully convinced of this concept that we find it emphasized in many channels of our public and private life. At the outset of its participation in the World War, the United States Government adopted

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one of the largest recreational programs in the history of the world—not out of sentiment, but because it wanted to have the healthiest and most efficient army and navy possible. Carrying out its belief in the importance of recreation to health and morale, the Government created the now historical War and Navy Departments' Commissions on Training Camp Activities. The major work of these commissions consisted in providing normal recreation programs for soldiers, sailors, and marines in the nation's service.

By reason of the fact that a number of national private organizations cognizant of the benefit of recreation, had been developing resources designed to stimulate wholesome leisure time activities among various groups in the United States, the commissions were able to function almost immediately after their formation. The Young Men's Christian Association, the Young Women's Christian Association; the Playground and Recreation Association of America, the Knights of Columbus and the Young Men's Hebrew Association aided the government to the full extent of their capabilities.

A typical statement showing the recognition of the importance of the expression of the play instinct in the underlying philosophies of a number of private philanthropic undertakings in the United States was issued by the American Red Cross. A recent bulletin says: "A well organized community recreation program may be a great factor in the fight for health. The visiting nurse or the medical inspector has not completed his or her task until constructive measures are supplanted for the activities and habits which lead to ill health. Recreation is the positive phase of the health program."

One of the outstanding movements which has committed its resources upon the conviction that "recreation is a health builder and retainer" has been that launched against venereal disease. The United States Public Health Service, the American Association for Social Hygiene, the Committee of Eleven, and all other agencies which have initiated programs to prevent the spread of venereal disease, have, without exception, strongly urged the adoption of well rounded recreational programs as one of the leading preventive measures.

Normal recreation not only helps to sublimate the sex instinct, but it provides a means of forming normal companionships. "The ages when boys and girls commit their first sex offenses," states a recent bulletin of the United States Public Health Service, "are in the teens and early twenties."

This craving for excitement, color, adventure, and romance must be satisfied, the bulletin reads further. Prostitutes and their parasites realize this and, by appealing to normal desires, entrap the weak and innocent by tawdry and sordid recreation that often leaves venereal diseases in its wake. It is quite possible for a community to combat the forces of evil, and to give its young people recreation in a wholesome way. And such recreation is essential as a preventive of the spread of social diseases.

This point is further emphasized on a recent issue of the Social Hygiene Legislative Manual, which holds that "clean, wholesome spare-time activities for both young and old are no longer considered luxuries, but necessities."

During the war the Young Men's Christian Association, the Young Women's Christian Association, War Camp Community Service, the Salvation Army, the Knights of Columbus, the Jewish Welfare Board, and the American Library Association, by providing theaters, libraries, athletics, clubhouses, and other recreational facilities, were an immense value in the campaign against houses of prostitution, unregulated dancehalls, resorts supplying liquor, etc.

Commenting at greater length on the experience of the United States Government in its activities to prevent and control venereal diseases among the personnel of its fighting forces in the recent war, the Manual points out

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The comfort of a bath is added to the privilege accorded of a play street near Henry Street Settlement, New York City.

that "no better laboratory could have been provided for a fair, comprehensive test" of the "American plan" of combating syphilis and gonorrhea, than that operated in the American army cantonments—and "under the most trying and adverse circumstances." The success of the plan proved its definite value. And, as is a matter of general knowledge, "clean and wholesome recreation played its part by providing healthy and entertaining sparetime activities for the men."

A Four-fold Campaign

So valuable was the "four-fold American plan" adopted by the Army, that Surgeon General Ireland is of the opinion that "any attack (on venereal diseases) which omits either law enforcement, or medical, *recreational*, or educational measures, is not likely to be a complete success." Many communities which have put the "American plan" into effect will bear out this statement as it can be applied to civilian groups. The recreational feature of the plan, although having less of a legislative bearing than the other measures, is nevertheless well worth considering. It is less a problem for the state than for the community, and its cost is not the main item. Some of the most effective activities have required little money. They have accomplished fine things through vision, organization, and the stimulation and coordination of existing resources.

Not only is "recreation essential to the prevention of venereal diseases," but it is equally essential for the prevention of juvenile delinquency, which, we should remember, is fundamentally a disease. Specialists in this field have ever advocated adequate playgrounds and recreational facilities as a means of decreasing juvenile delinquency. Experts on child psychology infer that the commission of crimes by juveniles is due either to mental defectiveness or to certain biological defects (such as the abnormal growth of certain glands) or to the perverted expression of normal instincts, chief of which is the play instinct.

Our whole attitude toward the problem of juvenile delinquency has been revolutionized during the last two decades. Children's courts and probation systems have been established in many quarters—to function after the damage has been done. And recreation centers, playgrounds, and parks, have been administered by private groups and by municipalities, who have been cognizant that such equipment constitutes insurance against delinquency. For example, a study made by Allen T. Burns, revealed that a decrease in juvenile delinquency of practically 30 per cent was coincident with the opening and maintenance of parks in the South Side of Chicago. This result covered a radius of blocks within a mile of the parks. From St. Paul, comes the report that juvenile delinquency in a section from which most of the cases in the juvenile court had come, had decreased 50 per cent following the opening of a social center in the neighborhood. Judge Ben B. Lindsay adds to this the observation that five hundred from among eight hundred girls who came before him recently for delinquency gave "lonesomeness" as a primary cause of their downfall. And in Dallas, Texas, a reduction of over 80 per cent in the number of Juvenile Court cases from a certain cotton mill district was noted to have followed the establishment of a play park in that locality.

The Director of the Chicago Crime Commission recently summarized in the following words this phase of the relationship between recreation and juvenile normality and health:

> In retracing the tortuous path of the youthful criminal, it is seldom found that the trail leads back to the playground, the diamond, the athletic field, or the community center. * * * The young delinquent has, in the majority of instances, grown up in the atmosphere of the saloon, the poolroom, and similar hangouts.
>
> The boy is a gregarious animal. While in his teens, unless restrained, he chooses his playmates wherever he finds them. This desire for companionship takes on an added importance as he grows older, as it then becomes a matter of selection. If not born to command, he looks to others. The boyhood game of "follow the leader" becomes real, and the influences exerted on the receptive mind of the youth will make or break the man, in the majority of cases.

International.

Setting up exercises on the sands before the morning dip in the Sound at Camp William Carey, Jamesport, L. I., where two thousand boys enjoy a two weeks' vacation each summer as guests of the Boys' Club of New York. Here definite training is combined with play activities.

In the large urban centers, the article goes on to state, due in great part to congestion, the bad influences more than counterbalance the good. The boy is cramped and handicapped when his instinct calls for play and roving, and he easily gravitates toward the corner loafing place or other hangouts of older men. He is getting his first lessons in "follow the leader," and the one who can show him the best time during his leisure hours will have much to do with moulding his character.

Of course, the obvious preventive for this sort of thing is healthy recreation, such as that promoted by Community Service, New York City. "The more social centers, baseball and football fields, playgrounds and open spaces, the less crime. The spirit of sportsmanship which is inculcated at such centers has a lasting influence on the mind of the young." There are approximately twenty-eight million children in this country between the ages of five and eighteen. Of these perhaps seven million live in cities of over one hundred thousand population. Taking into consideration the inadequate provisions made for children, both with respect to physical recreation as well as mental stimulus, it is little wonder that we have sporadic outbreaks of juvenile delinquency.

The animal spirit, which must find an outlet, plus the criminal instinct, which the boy may possess, lead to the tragedy of young offenders.

In spending some $7,175,000 for playground and recreation centers during 1920, 443 American cities expressed tangibly their faith in the recreating value of play. In 1919, seventeen American cities voted a total of $13,510,000 in bond issues for recreation purposes, realizing that adequate facilities for the wholesome use of leisure time not only promote health by opening channels of occupation other than those often found fruitful of ill health, but provide means for directly improving the physiques of thousands of citizens, old and young.

In business, too, recreation has been long since recognized as a valuable aid in maintaining the health, morale, and personal efficiency of workers. During the last decade, scientific management has come to the fore. Industrial engineers have been advocating the elimination of waste in industrial establishments through improved organization. It is significant that the establishments which have developed the best methods of management include a recreation program as part of their technique of organization. And these play activities, far from being actuated by pure sentiment, are operated for financial profit as well as for public service. For economical production is one way of increasing profit, and they have found that the healthy and contented employee is the most productive employee. And they know that a recreation program is important in maintaining his personal efficiency.

Among organizations which add a recreation budget to their operating overhead are many well-known concerns such as the Metropolitan Life Insurance Company, the Goodyear Tire and Rubber Company, the H. C. Truck Company, the Endicott-Johnson Company, William Filene Sons Company, B. Altman and Company, and the National Cash Register Company.

An outstanding example is the Joseph and Feis Company of Cleveland, manufacturers of men's clothing. From the point of view of scientific management, this factory, recently built, is considered a model. A considerable amount of capital has been invested in it, including as a part of the equipment a large auditorium, bowling alleys, a swimming pool, handball courts, and an outdoor athletic field—capital otherwise intended for investment for production. This company not only encourages recreation after working hours, but it has the luncheon hours so organized that a good part of the time is spent in recreational activities. The women many engage in community singing in the auditorium, or they may dance or play athletic games. The men may bowl or play baseball. In addition to the recreational program organized within the factory, the management stimulates dramatics, hikes, picnics, and other group activities. Indeed, it takes so seriously the matter of helping its employees get adequate opportunities for normal recreation, that it employs on its staff a person whose function it is to organize and carry on a well rounded play program in the factory.

Arthur Pound, in an article, "The Iron Man" in the October, 1921, *Atlantic Monthly*, points out that, with the expansion of our industrial life through the development of automatic machinery, the community will need more and more to concern itself with how the worker spends his leisure. "The attendant of automatic tools," he says, "does not live while he is on the job; he exists against the time when he can begin to live, which is when he leaves the shop. His task does not call for a fraction of his full powers as a sentient being, or monopolize his interest. His hours given to tending automatic machines are given to buy leisure; and in that leisure the operative lives. He lives in his sports, at the movies, at the prize-fights, at the blind pig, as well as at the theater, the lecture, the library, the park, and on the front porch of his inamorata."

The play instinct *will* find expression. Whether the expression be such as will contribute to the general health of humanity depends entirely on where and how people play, and on what they play at. Whether the play life is to be insurance against ill-health, as Dr. Dana urges that it should be, or whether play—or the lack of an adequate amount of play—is to be a contributory cause of ill health, can largely be determined by the community. Mr. Pound concludes that "the welfare of our people . . . depends upon our educating youth to use reasonably and gloriously the growing leisure which the common use of automatic machinery has in store for humanity."

And so far as to educate for leisure means to educate for recreation, the inferences from the present study seem to coincide with those which Mr. Pound has drawn in his article.

The Cancer Problem

A NOTABLE book by an American surgeon has been recently published in Europe under the caption "Le Probleme du Cancer," being a translation of the "Cancer Problem" by Commander W. Seaman Bainbridge of New York. At the time of its publication (1915) it was well received as it was recognized to give a comprehensive and discriminating account of the cancer situation then. The present edition is of somewhat peculiar interest, it being the first book to be issued from the press of the Three Kings of Louvain University since the buildings of that venerable university were burned. The translation is by Dr. E. Hertoghe of Anvers, the greatest authority on the thyroid gland and the diseases due to its abnormalities. This edition has been revised throughout and brought up to date in all essential details. The author believes in surgery for the relief or cure of malignant tumors but has good words to say for radium and x-rays as adjuvants to operative intervention or in certain cases to be used alone. However, Dr. Bainbridge insists that in order to obtain satisfactory results the surgery must be skilful and the technic extraordinarily careful; if not, the outcome may be worse than if no operation had been performed. The author has no faith in treatment by medical measures or by diet, although he thinks that careful diet may be of value in preventing malignant disease.

Perhaps the most instructive part of the book is that which discusses the education of the public in relation to cancer. The view that the only way in which cancer can be treated with any success is by early diagnosis and the employment of prompt methods, is universal. But the public must be educated to consult a medical man when symptoms which might be of a cancerous nature exhibit themselves and, moreover, a medical man who has had experience of the disease must be consulted. Unfortunately, only a few medical practitioners have sufficient knowledge of malignant disease to make an accurate diagnosis of it in its early stages.

Incidence of Heart Disease in the Community*

Out of Systematic Study and Full Records in Every Case Will Grow Adequate Preventive Methods

By LOUIS I. DUBLIN, Ph.D., Statistican, Metropolitan Life Insurance Company, New York City.

A DISCUSSION of the incidence of heart disease in the community is especially pertinent at this time in view of the high death rate from this disease that has prevailed during the present year. We in the Metropolitan Life Insurance Company have an advantageous position watching the experience among the many millions of our policyholders. We can see month by month and, in fact, week by week, just what conditions of health prevail in the country at large. Since November, 1921, and continuing each month to date, the death rate from heart disease has been appreciably higher than it was during the corresponding months of the previous year. The same has been true for the associated organic diseases, such as, Bright's disease, cerebral hemorrhage, and apoplexy. It must be remembered that the last three years were favorable ones for heart disease mortality. The rates for 1919, 1920, and 1921 were the lowest recorded during the last decade. When the increase began in the winter months of 1921, the change attracted little attention. The possibility that it ushered in a definite check in the favorable downward tendency for heart disease mortality was not seriously considered. But, by the end of January, 1922, there could be no longer any question that a definite upward tendency was in progress. As will be seen from the graph, the heart disease death rate increased sharply month by month until in March the rate reached the maximum of 168.2 deaths per 100,000 living, one of the highest figures recorded in recent years among Metropolitan Industrial policyholders. (Chart I)

Obviously, some of this increase for heart disease is the direct result of the influenza epidemic which broke out in the early months of this year. But this cannot be the whole cause because heart disease death rates that were higher than normal prevailed for several months before the influenza epidemic and have continued for several months after its close. The experience among insured lives would seem to indicate that we are experiencing in the current year a serious increase in the incidence of heart disease deaths quite apart from the effect of influenza and pneumonia, important as these two conditions are in affecting the heart disease rate adversely. We shall have to watch the developments for the rest of the year very carefully.

The fundamental importance of collecting all pertinent facts in regard to the incidence of heart disease in the community is urged. Uniformity of record, with such details of history and physical findings as will enable comparison, would bring out a mass of data which would justify definite prognosis which is now impossible. Effective preventive work on a wide scale must await such a mode of procedure.

Nor should such data, to be effective, be drawn exclusively from mortality records. Morbidity records need to be so extended as to point out the incipient case, and the predisposing environmental or constitutional condition which led to disabling heart lesions. Our present statistical studies are seriously inadequate in this regard.

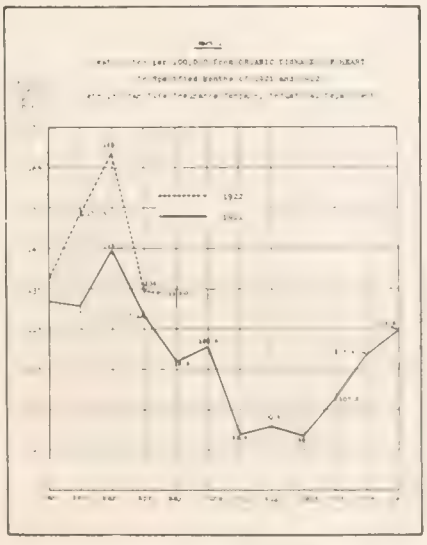


Chart I.—The heart disease rate increased sharply month by month until in March the rate reached the maximum of 168.2 deaths per 100,000 living, one of the highest figures recorded in recent years among Metropolitan industrial policy holders.

These facts are disturbing to all engaged in public health work because the figures for recent years had given some encouragement that a definite downward tendency had come for heart disease. It must be remembered that the great improvement in the rate for tuberculosis has left heart disease in the first place as the leading cause of death. During the first eight years of the decade, there was hardly any decline in the figures among insured lives. In the general population of the Registration Area, there was an almost continuous increase in the mortality from heart disease. But, in the years 1919, 1920, and 1921, the great improvement in the figures already referred to gave cause for hopefulness that a new situation had been inaugurated. Conditions at the present time are not very encouraging in this respect and would seem to indicate that the favorable heart disease mortality experience of the last few years was possibly only a temporary one, reflecting in part the result of the influenza epidemic of 1918 and 1919, when a large number of advanced cardiac patients were very likely eliminated, and also the effect of improved economic conditions for the wage working population during the war. It is a good deal of a question in view of all the facts, as shown in the following graph, whether there has been any lasting improvement in heart disease mortality during the last decade. This disease is today the chief cause of death. It is likewise a condition of the greatest importance from a public health standpoint. In spite of its leading position in mortality and morbidity, there has been virtually no gain in its control; the campaign against heart disease is very much in the same position as that against tuberculosis fifteen or twenty years ago (Chart II).

The incidence of any disease may be studied from two angles: (1) as a cause of sickness and, (2) as a cause of death. In respect to sick-

*Read before the Boston Association of Cardiac Clinics, Boston, Mass., May 18, 1922.

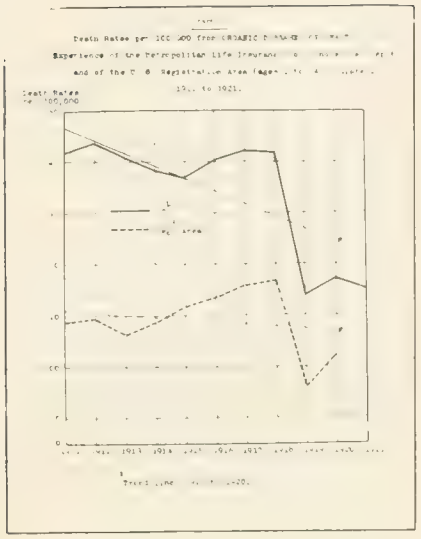


Chart II. Conditions at present would seem to indicate that the favorable heart disease mortality experience was possibly only a temporary one. All facts considered, it is a question whether there has been any lasting improvement in heart disease mortality during the last decade

ness or morbidity, we have very few facts indeed. There is very little authentic information on the prevalence of various types of heart affections. More recently, some information has been accumulated on the prevalence of heart lesions among school children as a result of the work of school medical inspectors. The examinations are, however, often made and recorded in a perfunctory manner. The greatest variations appear in the tabulations. It is not always possible to determine whether the figures include functional as well as organic disturbances. The result is the greatest variability, some cities showing an incidence of two per cent of the children affected and others less than one-half of one per cent. On the other hand, careful examinations have been made among certain industrial groups which show a considerable prevalence of heart affections. The findings of Dr. Schereschewsky of the United States Public Health Service among garment workers in New York; of Robinson and Wilson among employees in various industries in Cincinnati; and of Harris and Dublin among food handlers in New York, indicate that about two per cent of working adults have organic heart disease of one kind or another. The army medical examiners in connection with the draft and camp examinations rejected about four and a half per cent of those examined because of heart defects. The figures will, of course, vary considerably with the group of persons examined, the severity of their occupations and the age of the men examined. But, altogether, the evidence would seem to indicate that at least two per cent of the population show cardiac defects on examination. This means that in the population of the United States, more than two million persons of all ages suffer from serious heart impairments. This fact alone indicates the magnitude of this particular health problem, and what provision we must expect to make in the next decade to provide for the discovery and the care of these persons.

The statistics of heart disease mortality are more satisfactory, both in point of areas covered, of detail as to color, sex and age, and of diagnostic accuracy. Deaths are reported, even if the cause is not always stated absolutely clearly, especially in conditions where heart disease is associated with disturbances of the vascular and renal systems. Valuable use may be made of the figures, however, both in the reports of the Registration Area, and more especially for persons insured in the larger companies. I am in a position to present the figures for the ten-year period 1911 to 1920 among the many millions of persons insured in the Industrial Department of the Metropolitan and to show the incidence of heart disease as a cause of death at the various age periods of life, in each one of the main classes of this group, that is, among the white males, the white females, the colored males, and colored females.

Before we proceed, it is well to explain just how we measure the mortality from the several diseases. The index, or death rate, is the number of deaths from any disease during a calendar year for each 100,000 persons exposed during the year. The figures in the following table are obtained in this way. The only point to be remembered is that the rates are specific and refer to the particular class of persons designated. Thus, the rate 7.1 in the column "white males" at the ages one to four years means that seven deaths from heart disease occurred among white male children ages one to four for every 100,000 such white male children who were insured in that year. The other figures are obtained in a similar manner—(Table I and Chart III).

The first point that comes to view from an examination of the tables and of the graphic illustration is that the incidence of heart disease as a cause of death increases consistently with age. At the age period 35 to 44 when persons should be at the height of their productivity, one white person dies from heart disease in every thousand living and two colored persons out of each thousand. At the age period 65 to 74, the number of deaths from heart disease has increased to about 15 in each one thousand living, or to put the facts in another way, deaths from heart disease constitute 9.3 per cent of all deaths at ages 35 to 44, but, at the older period, 65 to 74, they are responsible for 21.9 per cent of the

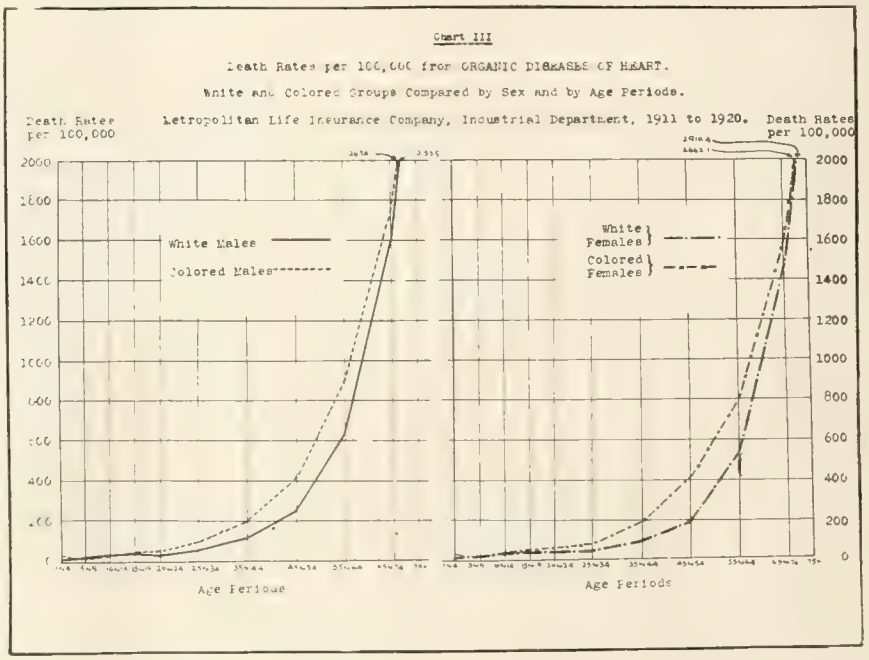


Chart III
Death Rates per 100,000 from ORGANIC DISEASES OF HEART.
White and Colored Groups Compared by Sex and by Age Periods.
Death Rates per 100,000
Metropolitan Life Insurance Company, Industrial Department, 1911 to 1920.
Death Rates per 100,000
White Males
Colored Males
White Females
Colored Females
Age Periods
Age Periods

Chart III.—Statistics of heart disease distributed according to color, age and sex, and diagnosis indicate increased incidence with age, greater incidence among colored persons than white. The rates are higher for females in the age groups below thirty, but higher for males from that age onward, the difference being regularly greater for males with advancing years.

TABLE I. Death Rates per 100,000 from Organic Diseases of the Heart. Metropolitan Life Insurance Company, Industrial Department, 1911 to 1920

Age Periods	White		Colored	
	Male	Female	Male	Female
All ages	118.1	132.8	189.1	200.1
1-4	7.1	5.9	13.1	17.5
5-9	14.0	16.7	12.1	16.5
10-14	21.8	29.1	20.2	28.9
15-19	28.9	30.0	28.6	36.7
20-24	27.6	30.8	32.1	40.2
25-34	47.5	45.8	85.2	75.7
35-44	108.6	89.3	199.0	199.8
45-54	245.1	195.2	403.1	414.5
55-64	622.2	516.0	886.0	785.6
65-74	1,607.0	1,445.9	1,717.0	1,570.0
75+	3,153.7	2,910.4	2,674.1	2,662.1

deaths. There is no exception to this rule. The rates are also very much higher for colored persons than for whites. The sex ratios of heart disease mortality are also rather interesting. The rates are usually higher for females than for males up to age 30. From that age onward, the rates for males are higher, the difference becoming regularly greater with advancing years.

But, if heart disease is particularly important in middle life and at the older ages, it is already an important condition in childhood and early adult life. Thus, the number of deaths between the ages of 5 to 9 are as many as from two such important infectious diseases of childhood as measles and whooping cough. Between 15 and 24 years, the deaths from heart disease are more numerous than from typhoid fever. Between the ages 25 and 34, heart disease caused each year almost as many deaths as lobar pneumonia. So heart disease is not to be overlooked as a factor in the mortality of young people. It takes a heavy toll throughout life.

It is difficult to understand just why the rates for young girls after age 5 should be much higher than for boys at the corresponding ages. Perhaps the same causes are at work which make the death rates from tuberculosis higher among growing girls than among boys. The greater prevalence of heart disease among colored people is notorious. Colored males show rates from heart disease during the main period of life from 65 to 80 per cent higher than for white males at the same ages; those for colored women are twice as high as for white women at a number of age periods of life. Possibly, the higher prevalence of such diseases as syphilis, malaria, and typhoid fever in the colored race plays an important part in creating the excess of heart disease mortality.

Some relations have been discovered to exist between the prevalence of heart disease and occupation. While the figures are not entirely trustworthy, it would appear that of all occupations, those which are carried on upon the water have the highest heart disease rates. Thus, sailors, fishermen, and to a less degree, bargemen, show a very high prevalence of heart affection. It is possible that this relationship is in some way related to exposure to greater dampness and cold. Next to these occupations are those exposed to alcoholism, including brewers, and those exposed to lead poisoning. There are high rates for metal workers, blacksmiths, and especially for cutlers and tool makers. All sedentary occupations have favorable death rates from heart disease.

Summary

To summarize the facts then, we may say that, according to our best knowledge, there are about two and one-half million persons in the United States who, on examination, would show some type of organic heart lesion. These persons are not all sick. Many of them are engaged in their ordinary pursuits and have no idea of their impairment. Yet, they are seriously impaired lives who, unless they take note of their condition and adapt themselves to their lesser capacity to labor, will break down at a premature age. Insurance studies have shown that persons impaired with such minor defects as mitral regurgitation have, as a group, double mortality for their age. It is the business of American physicians, and especially of those in the cardiac clinics, to discover for each community those who are in any way suffering from one type or another of heart defect. No one knows the amount of loss sustained annually through the disability for work which results from the varying incapacity among these two and one-half million people.

In addition, there are each year in the United States about one hundred and fifty thousand deaths from heart disease and the number is not declining. Even under age 45, there are each year over 22,000 deaths. Each one of these deaths represents a distinct loss to the community since these persons are presumably at an age where production may be expected to be at its highest. They leave good sized families of minor children who suffer from the loss of a parent and, more usually, the father. This is the extent of the community problem which is brought about each year by heart disease.

It is very obvious, however, that our information with reference to heart disease both as a cause of sickness and of death is very fragmentary. At the present time, there is really no agency or machinery for collecting the facts by means of which the campaign against heart disease can be properly guided. It is just this sort of machinery that is called for at the present stage of the movement. This information will provide checks against misdirected enterprise, and will suggest which of many possible lines of activity are really worthwhile.

What promises to fill this need is the plan of the Association for the Prevention and Relief of Heart Disease in the City of New York. This Association, which conducts a considerable number of cardiac clinics, proposes to keep systematic records in connection with its work. The greatest emphasis has been placed upon a full history in each case, and on a complete record of the findings on each examination. A series of follow-up visits by social workers is planned, and the findings from this source are likewise provided for in the record. A system of tabulation and of analysis is being considered, so as to answer the outstanding questions which the directors of this Association have in mind. It is hoped that out of these records it will be possible to throw light on the prognosis in various types of cases, on the duration of the various heart lesions from inception to death and on the value of certain types of treatment in relation to the restoration of working capacity. A goodly number of other factual items will naturally suggest themselves at the outset of a campaign against a disease of such magnitude as heart disease. We append to this article a reproduction of the first page of the record form (Fig. 1).

What is being planned for the city of New York should, of course, be seriously considered by associations of heart disease clinics in other cities of the country. It is certainly to be hoped that the clinics of such cities as Boston, Chicago, and Philadelphia, whether carried out under municipal or private auspices, will develop a similar system of records and plan similar tabulations and analyses. The greatest value of this effort will come from the multiplication of sources of information and out of the exchange of experience from place to place.

What will probably remain a most fertile field for the development of knowledge is the practice of individual physicians who must, for a long time, continue to be the chief instruments in the campaign against heart disease. The individual doctor should appreciate, more and more, the necessity of keeping a full history and current record of his cardiac patients. The record form recommended for use in New York City should be indorsed by the leaders of the profession, and its use encouraged by the great body of physicians. It will then be possible at regular intervals to send the material to some central agency where the records might be tabulated and the conclusions made available to the whole profession. On a foundation of established fact, the campaign against heart disease will make rapid and substantial progress.

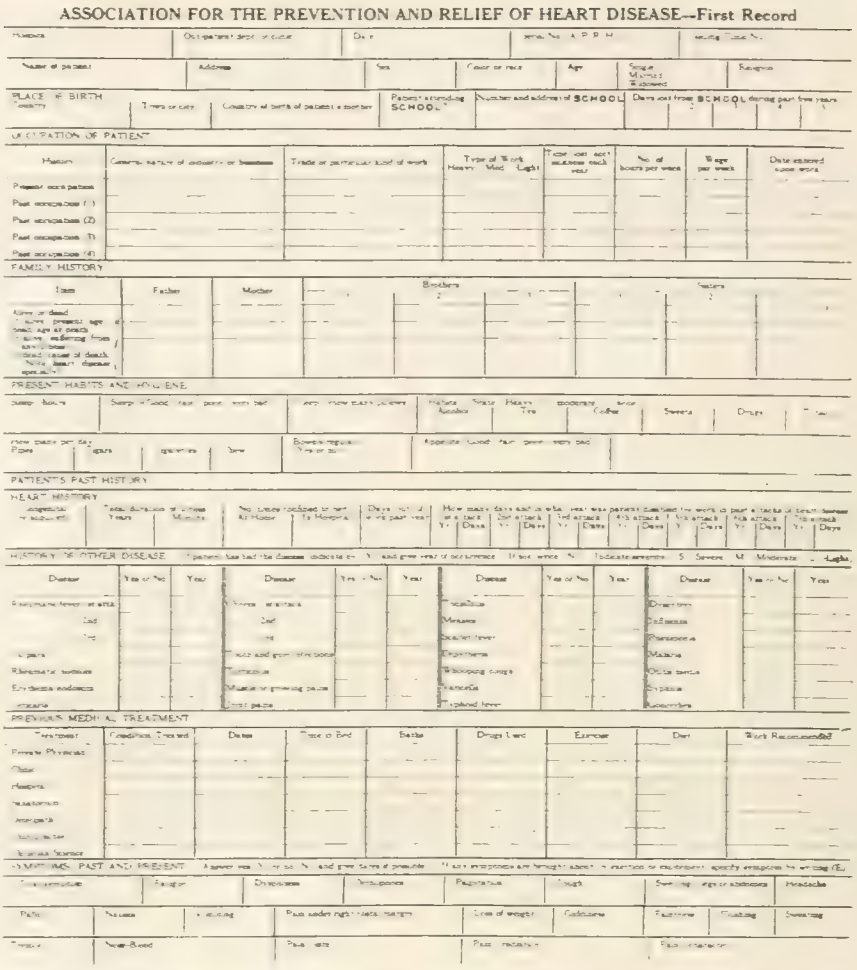

ASSOCIATION FOR THE PREVENTION AND RELIEF OF HEART DISEASE—First Record

Fig. 1. The greatest emphasis is placed upon systematic records in each case of heart disease. This record form, adopted by the New York Association for the Prevention and Relief of Heart Disease provides for full history and complete record of physical findings on each examination. Such records will develop possibilities of prognosis in given conditions.

Land—Recreation—Health

By KENNETH F. DUNCAN, Field Secretary, The Harmon Foundation, New York City.

DID you ever pause to estimate the health value of Central Park to New York City? Do you, in the busy rush of the day, ever stop to consider what your own town may be losing today in the health of its citizens of the tomorrow of ten, twenty or fifty years through lack of open play and breathing spots? Have you ever actually determined to your own satisfaction that boys and girls of your town, right now, today, have a field of their own where normal development may take place and where normal recreation and sport do not constitute trespass? Recently the writer made a survey of a dozen cities ranging in population from fifteen thousand down and was appalled at the surprisingly small number of plots of land centrally located and available for acquisition as playgrounds. Perhaps a walk or drive through the central section of your town or a chat with an up-and-going real estate man will convince you that the acquisition of public land for your town is a matter that can ill afford to be long postponed.

Perhaps you will find playgrounds and athletic fields established. If so, are they on land consecrated to that purpose forever or are they merely "squatters" on land being held for future school buildings or even on privately owned land held for sale? Many a splendid recreation system has been wrecked by suddenly losing its anchorage. Has the public health worker or physician any responsibility in the matter? Undoubtedly the answer to this question is "yes." Should he take any step toward inaugurating the movement to provide land? If investigation proves the need to exist in his town, the answer can hardly be other than "Yes" to this question, also. The sad effects of lack of play—of outdoor play—on the health, particularly the health of children, are too well known to need reiteration in an article for the readers of this magazine. But outdoor play cannot be insured unless play space—naked land—is provided.

There is an organization whose function is to help small communities acquire public lands for play purposes. This organization is the Harmon Foundation with headquarters at 140 Nassau St., New York City. It is a non-profit organization, founded by Mr. William E. Harmon. The experience of thirty years in the development of real estate convinced Mr. Harmon that attention was not given

sufficiently early in small communities to the vital need of adequate open play spaces, of providing permanent breathing spots as the community grows; that many of the opportunities to acquire good sites at reasonable cost that existed yesterday are gone today; that by tomorrow most of those still available today will be gone. This conviction, coupled with the remarkable effect of the gift of a recreation park and community center on the life of his own home town, resulted in the organization of the Foundation, with a twofold purpose: (1) to bring to communities a sense of the vital necessity of setting aside for all time open play spaces, of providing generations to come with land, the "Gift Eternal;" (2) to render certain definite aid to communities realizing this need.

This help may take one of several forms. First, at the invitation of the municipal authorities, of a Chamber of Commerce, Rotary Club, Playground Association, Women's Club or other representative group the Foundation will cooperate in a city-wide subscription campaign to raise funds to purchase the land required. The services of a Field Secretary will be given for a period of several weeks, without charge of any kind, to organize the children of the town into a unique selling force to "Sell their own playground." This method has been successfully demonstrated; its attendant publicity campaign possesses enormous educational value and stimulates the interest of the community in all phases of recreation. Assistance will also be given in the shape of publicity and organization of a city election campaign if that is decided upon rather than a subscription campaign.

In communities not over ten thousand in population and in a position to conduct the campaign without the services of a field secretary of the Foundation, an outright contribution up to 10 per cent of the amount raised and paid in to the purchase fund may be made under certain circumstances, such contribution not, however, to exceed five hundred dollars. A contribution will not be made to a campaign the plans for which were actually under way previous to June 1, 1922.

In towns under five thousand where a campaign seems inadvisable at this time and where the need appears urgent and suitable land is available at a reasonable price, the Foundation in some cases is prepared to purchase a site at a cost not to exceed two thousand dollars, and to lease it for playground purposes to an association, school board, or other organization for a term of five or ten years, with an option to buy the property at any time within that period at its exact cost plus a low rate of interest to cover interest and taxes. Or, if desired, and the state and local laws permit, the Foundation might deed the property to the town, subject to a mortgage running for ten years and bearing interest at 4 per cent, thus saving taxes. In either case the Foundation would be satisfied to receive back its investment in almost any way, so as to put as small a burden on the town as possible. Payments of one hundred dollars or multiples thereof would be acceptable.

The Playground Division of the Harmon Foundation has but one interest—to awaken communities to a realization of the recreational needs of the children and the health and character building benefits thereof, and then to help those communities to meet that need. It believes that land for play purposes is a primary and fundamental need, and that the proper time to consecrate that land to the child forever is while good sites are still available at costs within reach. The three plans outlined were devised to meet average conditions. If a town has a problem that does not seem to fit any stereotyped method, some other basis of cooperation is worked out. The Foundation is interested only in getting the job done.

Mortality Past Middle Age

By I. S. FALK, Department of Public Health, Yale School of Medicine, New Haven, Conn.

ONE of the notable contributions of vital statisticians in the few years immediately succeeding the decade 1900-1910 was the proof that in the United States the specific death rates for ages under forty-five were decreasing, and for ages over forty-five were either stationary or increasing, in spite of a decreasing crude death rate for all ages. In the intercensus period 1910-1920 studies of the mortalities of special groups in the population appeared to indicate a state of affairs similar to that of the first decade of the century. The feeling among statisticians has been one of watchful waiting for the appearance of the 1920 census data on the age distribution of the population. Without these figures even reasonably accurate measurement of the trend of mortality in the whole country was impossible. At this time (May, 1922) the Census figures for 1920 have not yet come to hand and it may therefore appear premature to assert confidently what the life tables for 1920 will show. Enough has already been published, however, from the Census Bureau and from reliable statistical offices dealing with smaller population groups to indicate beyond doubt that in 1920 the death rate was lower in every age group than in 1910. It is hoped that the data presented in this note will correct the untimely impression produced by the appearance in THE NATION'S HEALTH for April of this year of a paper on the Increased Mortality Past Middle Age."[1]

In this paper, Dr. MacCarty presented a table of figures on mortality

1. MacCarty, M. T., M.D.: Increased Mortality Past Middle Age, THE NATION'S HEALTH, April 15, 1922, iv, No. 4, 202-204.

TABLE I.—Comparison of Mortality of Males and Females by Age Groups. Death Rates per 1,000 Population.

Registration States as Constituted in 1900.

Age	Males			Females		
	1900	1911	Per cent increase or decrease	1900	1911	Per cent increase or decrease
Under 5	54.2	39.8	—26.57	45.8	33.3	—27.29
5-9	4.7	3.4	—27.66	4.6	3.1	—32.61
10-14	2.9	2.4	—17.24	3.1	2.1	—32.26
15-19	4.9	3.7	—24.49	4.8	3.3	—31.25
20-24	7.0	5.3	—24.29	6.7	4.7	—29.85
25-34	8.3	6.7	—19.28	8.2	6.0	—26.83
35-44	10.8	10.4	— 3.70	9.8	8.3	—15.31
45-54	15.8	16.1	+ 1.90	14.2	12.9	— 9.15
55-64	28.9	30.9	+ 6.92	25.8	26.0	+ 0.78
65-74	59.6	61.6	+ 3.36	53.8	55.1	+ 2.42
75 and over	146.1	147.4	+ 0.89	139.5	139.2	— 0.22
All ages	17.6	15.8	—10.23	16.5	14.0	—15.15

TABLE II. Death Rates in the Registration Area: 1910 and 1920.

Age	Death rates per 100,000 population		Per cent decrease
	1910	1920	
All ages	15.0	13.1	12.7
Under 1 year	130.8	96.6	26.1
1-14 years	63.6	48.0	24.5
15-44 years	69.1	65.9	4.6
45-74 years	25.8	22.8	11.6
1-74 years	10.5	9.4	10.5
75 and over	143.6	134.9	6.1

TABLE III.—Mortality from Principal Causes of Death, U. S. Registration Area, 1910 and 1920.

Cause of Death	Death rate per 100,000 population		Per cent decrease
	1910	1920	
All causes	1,496.2	1,306.0	12.7
Organic diseases of the heart	141.5	141.9	—0.3
Pneumonia (all forms)	147.7	137.3	7.0
Tuberculosis (all forms)	160.3	114.2	28.8
Acute nephritis and Bright's disease	99.1	89.4	9.8
Cancer (all forms)	76.2	83.4	—9.4
Accidents	84.1	71.4	15.4
Influenza	14.4	71.0	—393.1
Puerperal causes (total)	15.7	19.2	—22.3
Puerperal septicemia	7.2	6.6	8.3
Typhoid fever	23.5	7.8	66.8
All other causes	726.0	563.9	22.3

by age groups, comparing the death rates of 1900 and 1911 for males in the Registration States as constituted in 1900 (the so-called original registration states). It is unfortunate that Dr. MacCarty presented only the figures for males. Had he taken them for both sexes combined or separate he would undoubtedly have been more reserved in his conclusions. In the original tables[2] or in Dr. Louis I. Dublin's more conservative analysis[3] of the data an increasing mortality was evidenced among males for all ages over 45 and among females only in the age groups *55-64* and *65-74*, and not in the age groups *45-54* and *75 and over*.

In February of this year the Department of Commerce, through the Bureau of the Census, issued a statement[4] showing deaths and death rates by age groups from different causes of death in 1910 and 1920. Since then the contents of this official statement have been made more easily available through republication in the *Public Health Reports*[4] under the title "Death Rate in Every Age Group Lower in 1920 than in 1910." Table I is taken from the paper by Dr. Dublin, and Table II has been prepared from the figures in the Census Bureau report.

It is to be noted that the apparently increasing old-age mortality between 1900 and 1911 indicated in Table I applies to the original registration states and the declining old-age mortality between 1910 and 1920 in Table II to the entire Registration Area. The population data for the individual states have not yet been published and it is therefore impossible to calculate the specific death rates for the populations in any special portion of the Registration Area. There is every reason to believe that the reduction in mortality at the higher as well as at the lower ages of life has occurred in the original registration states in the same manner as in the entire Registration Area, as indicated in Table II.

Table III prepared from the Census Bureau report shows that the death rates for 1920 are lower than those for 1910 not only for all causes of death but also for each of the principal causes of death—tuberculosis (all forms), pneumonia (all forms), acute nephritis and Bright's disease, accidents, typhoid fever and "all other causes"—excepting influenza, cancer (all forms), and puerperal causes (total). Puerperal septicemia showed a decrease. Organic diseases of the heart showed practically no change (an increase from 141.5 in 1910 to 141.9 in 1920).

This note is not written with any desire to throw the proverbial monkey wrench into the wheels of public health progress. It is presented in the belief that the starting point in a campaign against the "degenerative disease" is an accurate statement of the *status quo*. A full statement of the facts about mortality at the higher age groups is not yet possible. The available statistics indicate that the apparent increase in the mortality from these "degenerative diseases," to whatever cause it may have been due in the past, has in the last decade given place to a decline.

2. Annual Report on Mortality Statistics, 1911.

3. Dublin, Louis I.: The Trend of American Vitality, Popular Science Monthly, April, 1915.

4. Public Health Reports, March 3, 1922, xxxvii, No. 9, 487-489.

5. The Statistical Bulletin of the Metropolitan Life Insurance Company for May, 1922, tables of the specific death rates for the Registration Area as of 1900 are in accord with these conclusions.

Chicago Provides New Municipal Baths

Chicago's new North Avenue Baths located in the fifteenth ward were formally opened recently by Health Commissioner Herman N. Bundeson. Free swimming instruction is given to school children every Thursday.

The Educational Factor in Public Health*

The Impulse to Get What Is Healthful Is Not Instinctive, But Is the Result of Education

By FLORENCE MEREDITH, M.D., Professor of Preventive Medicine, Woman's Medical College, Philadelphia, Pa.

PUBLIC health work divides itself rather definitely into three distinct phases which often are not differentiated, (1) research, (2) administration, (3) education. Up to a comparatively recent time the last was not given due consideration. Medical schools were chiefly engaged in producing doctors who could treat disease, and schools of public health in producing research workers and administrators of public health. These doctors of medicine and of public health also developed into public health educators or not, as the case might be. They did so sufficiently often that the value of such work became apparent, and the tendency now seems to be to give particular training in the methods of public health education, both in medical schools and schools of public health.

This does not usually mean cutting down any of the other fields. We need cure as much as ever. One of the ways of preventing many diseases is to cure those who have them, so that they will not be a menace in the community. We need research as much as ever. In fact, we are calling upon sociology and economics to supply the results of their research to be used in public health work, and upon many other non-medical sciences. In the medical field it is the case with many diseases that we need more knowledge before we can do much in the way of educating the public about them.

And we need more training for administration than ever before. Doctors without such training, and even laymen, have done valuable work, but it is appearing increasingly important that those who undertake administration be particularly trained for it in schools of public health. Most doctors would not think of trying to occupy such a position with such training. But we also need special training for the important matter of public health education. It is today less well prepared for than any of the other fields.

The saying of the New York Department of Health that "public health is purchasable" is true only with qualifications. Public health is not purchasable unless the public knows what to purchase, is financially able to purchase it, and WANTS to purchase it.

The Receptive Attitude

It is here that education of the public is made necessary. We can have no application of the results of research and no field for administration unless the public is willing to accept research and to permit administration. In other words, unless the public has been educated to the carrying on of public health work, research and facilities for administration of work so devised will be relatively futile. On the other hand, no education is wise unless it is based on scientific research, nor can it be made effective without the means of administering what the public has learned to want.

Public health education is at once, therefore, both the most idealistic aspect of public health work, in that its aim is to establish high ideals of health and is most practical in that it is the fundamental step toward the application of knowledge gained through research.

Science has already advanced enough so that we should have much better health than we now have. Practice is far behind knowledge, partly because of administrative defects, but largely because of the fact that the wisdom of science is not yet popular wisdom. In most places, indeed, we have the machinery for adequate administration if it could be used to its full capacity. What we have not is the willingness of the public and of individuals to utilize both scientific knowledge and the facilities for its application.

There have been in the past several points of view in regard to the preservation of health. The oldest of all was that of leaving the individual to himself, for the most part, to look after his own health, until he became ill, at which time he became a matter of much interest to

The dispensary is a means of relief, but it is no less an educational center where new standards of health care are propagated and new objectives formed which are the best present evidence of increasing interest on the part of the individual in health facts.

*Read before the annual conference of the Association of Women in Public Health, New York City, November 15, 1921. A succeeding article will deal with methods in health education.

the ancient medicine man and his successors. Even from the beginning, however, there was a tendency to try to control health by controlling the environment. Originally this consisted of the wearing of a charm or talisman. Afterward it became somewhat more logical. Since the days of Murchison and his pathogenic theory we have been trying to benefit the individual's health by making things right around him. For a time health was hardly considered a personal matter at all, but a matter of environment. Our first great decreases in the death rate resulted from improved external conditions. At that stage of our development probably no other methods could have produced so great decreases.

We are now controlling external conditions more intelligently than when we believed in "nuisances" and "miasms" as the chief cause of disease. But we are still trying hard to get at health from the outside. Such efforts are receiving a tremendous amount of well-deserved attention, and results can be shown. Yet in this big work we often lose sight of the fact that the individual is a very great determiner of his own health.

If we bear this fact in mind, we arrive at the present method of health conservation, which is a reaction to both former methods, and a combination of the two. It includes all possible efforts to improve health from the outside, but relies upon the individual to do a great deal for himself. It differs from our original method of leaving on the individual the responsibility for his own health, however, in that now the aim is to have this individual able to look after the personal aspects of health intelligently.

External Aids to Health

Those who have been working toward health from the outside—such as those who have built model houses and tenements and furnished every device of health and safety in shops and factories have sometimes been surprised that it has not borne more fruit in the better health of those receiving these benefits. It should not be a surprise, however, for of what use is a rocking horse to a child who can only lie in his cradle and kick? It is not necessarily the fault of the one who supplies bath tubs that they are used as coal bins, or of the one who supplies respirators if they are allowed to gather dust hanging on a nail, or of the one who provides ventilating systems if they are never put into use. But it's somebody's fault that the individual misses the benefit to health through not knowing enough to use them. It may be said that the question of healthful surroundings as a whole is not covered by the illustrations given. This is perfectly true, for a man often benefits from healthful surroundings in spite of himself. Nevertheless the benefit of such surroundings and the educational value they have in themselves is not what it might be in many instances, if all individuals were educated to know what healthful practices mean and what they are for.

Of course an individual may still, without his knowing it, or cooperating to get it, derive benefit from better conditions. An illustration of this is the practical elimination of typhoid in large cities. The average individual took a small part in making this possible. Typhoid bearing excreta are still distributed as carelessly as ever. Yet the individual has benefited as much as if he had stood by at every step toward pure water.

Good conditions around a man may do much to educate him, too. An illustration of both of these points is the providing of well cooked, suitable food in industrial plants. The worker's health is benefited directly, and indirectly he perhaps develops a higher standard in food, by comparing the food provided with his home dietary. We are every day observing such improvements in standards.

If the worker spends his money for silk shirts for himself, a fur coat for his wife and high heeled shoes for his daughter, it is because these things are considered of more value and the source of more comfort than the joys of health. This wrong conception is certainly partly due to lack of health education. When it is due to sheer stupidity in not grasping the idea of the desirability of health, then only time plus all our efforts will overcome it. But there are far better ways of building up a well populace than waiting for Nature to produce individuals who are so clever they do not need to be told the why and the how of healthful living.

International.

The health protection of the community often hinges upon exhaustive laboratory study of the individual patient. Here, too, the public is coming to understand that precise methods require preliminary study, and in every case involve the intelligent cooperation of the patient.

The Apostle of Health

In order to make whatever is done from the outside worth while, standards must be built up from the inside. It is analogous to the placing of public libraries in a town where most of the inhabitants cannot read. The very fact that the library is there is an incentive to the people to read. But there must be someone with a zeal for reading and for teaching reading—someone who believes that people would be better off for learning to read. Let libraries continue to be built, and at the same time let people continue to be taught to read—a statement that is very trite in this field, accepted by everybody.

We do not always see analogous situations in the field of public health. A careless sneeze may do more harm in a theater ventilated by vacuum and plenum, than ordinary poor air uncontaminated by coughing and sneezing. Chemically satisfactory and physically healthful air is not uncommonly provided these days, but one can hardly be many minutes in a public gathering without witnessing unguarded coughing or sneezing? We

Underwood & Underwood

Atmospheric tests are now being made in a movie theater. Washed, purified or vitalized air, however, is not proof the community against the "broad-cast" sneeze, or the victim of respiratory disease who does not do his part toward safeguarding his neighbor.

need both good air, and individuals who know enough not to cough and sneeze into it.

The purely environmental method of building health is one-sided, and not very constructive. It is likely to give us individuals in the next generation still trying to balk or reluctantly following the lead of the far-sighted, rather than themselves initiating public health measures, as the educated would do.

But the purely educational method would be just as bad. Educating individuals and then leaving them to get what they have been educated to want, is sound from the point of view of developing the racial stock, for it would mean the survival of only the physically fit, and the fighting fit. It has been questioned by some scientists whether we are wise in aiding the unfit to pull through, and to propagate their own feeble kind. But no one has yet convinced us that the conscience of the modern man would permit him to follow anything like the methods of Sparta. Giving him education as to how to survive would place him in a somewhat better position than the infant of Sparta, but even with this many would go down in the struggle. Not only would this method be inhumanly cruel, but it would be unnecessarily slow, considering that the world needs healthy men and women now. The growing belief in the possibility of extensive blastophthoric damage, leads us also to the immediate improvement of health in all possible ways.

The modern method implies provision by the wiser for the needs of the ignorant, while trying to do away with their ignorance. What a relief it would be not to have to fight to put over some health measure for which people should be clamoring! Even college students often have to be coerced into having physical examinations, or attending gymnasium, or going to bed at a reasonable hour. Only 10% of the individuals offered a complete physical examination by a certain insurance company accepted the offer. Good food in school and factory restaurants must usually be sold at or below cost, or highly unsatisfactory cold lunches will be brought from home. In factories men engaged in lead work must often be paid for the time they are engaged in washing the lead from their hands, or using the shower baths provided.

His Brother's Keeper

A baby who is supposed to grasp for objects when it is a few months old, will not exhibit this faculty, however, if there is no object near to grasp. The object must usually be dangled tantalizingly in front of him, and then comes the impulse to grasp it. It would be prolonging the progress of his development unduly, and cruelly if the object were his bottle, if the baby were not encouraged by the proximity of the desirable objects.

Often health facilities must be dangled before the eyes of the public before the impulse arises to grasp them. But unlike the case of the baby, the impulse to get what is healthful is not instinctive. People must be trained, for example, to want pure food. But at the same time pure food must be available in the city markets where they can get it, once the impulse has been aroused. This means that the enlightened must work, often against opposition, to provide for needs that are not yet felt, and at the same time must endeavor to cause the need to be felt. This is what the modern "hygienist" is trying to do. I prefer the term "hygienist" to "sanitarian" because the former seems to connote a wider interest in health, concerned with both the individual and his environment; whereas the latter seems somewhat more limited to the matter of cleanly and healthful surroundings.

In conclusion, research determines in what respects the public should be educated in health matters, and guides administrative practice. Administrators of public health take the standards of research and the ideals of the most enlighted and put them into practice—if possible. But often the advice and consent of the least enlightened is lacking, which frustrates efforts. Education is therefore a fundamental in the field of public health, as will be readily granted by a group of women such as this. But not so readily shall we agree on who shall give this education, where they shall be trained to give it, by what methods they shall give it, how and when and to whom it shall be given.

I think we shall agree, however, that not only should doctors of medicine and doctors of public health and certified sanitarians consider health education a part of their role, but that there must be many other kinds of health educators, to translate the findings of science into the popular tongue.

Good food, bad food, murderous food, . . . offered alike to an indiscriminate public . . . educational exhibits and informational materials are given out . . . premiums based upon intrinsic value as received in the experimental . . . not yet

A Compilation of Current Notions on Feet

Tabulated from Inquiry Made of One Hundred Orthopedists and Thirty-Five Non-Medical Men

By HERMAN W. MARSHALL, M.D., Boston, Mass.

A QUESTIONNAIRE on the basis of fifty items fundamental to the intelligent management of feet was prepared by the writer and distributed to orthopedists and retail shoe merchants. One hundred orthopedists from many cities of the United States and Canada have replied, and thirty-five non-medical answers have been received.

Part I of this article analyzing the concensus of opinion of orthopedists and shoe merchants on fifty fundamentals of foot requirements appeared in the July issue of THE NATION'S HEALTH.

(30) *Whitman or "Rocker" plates not only hold the feet, but tend to restore sagging arches to former posture. These supports are rather difficult to make and to fit well, also they may be uncomfortable to wear if quick corrections are attempted, yet they are unusually effective in a difficult set of cases.*

Orthopedists agreed, 72=72%; disagreed, 13=15%; doubtful, 9=9%; no opinion, 4=4%.

Shoe dealers agreed, 19=54%; disagreed, 4=12%; doubtful, 1=3%; no opinion, 11=31%.

Worcester, Mass.—They have an extremely limited field.

Detroit, Mich.—They do not tend to restore sagging arches without developmental treatment.

Boston, Mass.—Only for young people and children.

Chicago, Ill.—Agreed in very rare cases.

San Francisco—Absolutely torturing and unpardonable.

New York City.—Agreed, but many patients prefer to carry their Whitman plates in their pockets instead of putting them into the shoes.

Hartford, Conn.—Once an arch support always an arch support, unless muscles can be built up.

Atlanta, Ga.—Dr. F. G. Hodgson: Doubtful.

Syracuse, N. Y.—Syracuse Clinic: Doubtful.

Buffalo, N. Y.—Disagreed.

(31)—*Anterior arches of the feet are depressed abnormally very often by continuous wear of high heeled pointed toed shoes. When anterior arches weaken, such shoes should be discarded until feet have recovered thoroughly. Restoration of anterior arches is accelerated by temporary use of anterior arch pads and appropiate foot exercises.*

Orthopedists agreed, 99=99%; disagreed, 1=1%; doubtful, 0=0%; no opinion, 0=0%.

Shoe dealers agreed, 30=85%; disagreed, 4=11%; doubtful, 1=3%; no objection, 0=0%.

**Lynn, Mass.*—E. H. Dunbar: Add at end of statement—"and shoes that are of sufficient length to relieve back pressure."

Chicago, Ill.—It may not be safe to discard high heeled shoes suddenly if heel cords are shortened.

**Rochester, N. Y.*—Anterior arches are depressed very often by high heeled pointed shoes that have *flexible shanks.*

**Boston, Mass.*—When anterior arches weaken such shoes should be discarded for all time.

**Boston, Mass.*—Mr. Thomas Burns: The value of physical therapy, massage, and gentle repeated manipulations should be emphasized when attempting to restore anterior arches and toes that have not been crumpled too long.

It is possible to assist bones to resume their normal relationships, also to relieve sometimes undue tensions that have tended to develop as toe joints and medio-tarsal joints have been subjected to harmful strain, with tendencies toward gradual subluxations.

Contracted toes can be gently and gradually straightened; and tendons that move them may be helped to resume their usual smoothly functioning control. Temporary pads are very important adjuncts to maintain advantages gained between treatments.

(32)—*Shoes that possess inswinging front parts of approved orthopedic style may be excellent for longitudinal arches, and may be harmful simultaneously for weak frontal arches. In such shoes there is shifting of weight more to outer edges of feet and toes. The same direct pressure that is exerted very commonly on the outer toes, deflecting them and producing calluses, while it helps to maintain the longitudinal arch also thrusts the frontal arch downward. When this condition develops, there should be given more support under longitudinal arches, and shoes fitted which possess sole patterns that conform more closely to imprints of the bare feet. New straighter lasts should be recommended and fitted long, with frontal arch pads temporarily to hold anterior arches.*

Orthopedists agreed, 74=74%; disagreed, 9=9%; doubtful, 10=10%; no opinion, 7=7%.

Shoe dealers agreed, 30=85%; disagreed, 3=9%; doubtful, 1=3%; no opinion, 1=3%.

Boston, Mass.—I disapprove entirely of inswinging shoes under any circumstances.

Philadelphia, Pa.—There is no piece of leather made that will hold the foot laterally.

New York City.—Applies only if the shoes are fitted too short or narrow or both, or if there is marked deformity of the foot.

Chicago.—Doubtful whether new straighter lasts should be recommended.

Winnipeg, Manitoba.—Galloway - Gibson Clinic: Disagreed.

**Rochester, N. Y.*—Generally correct.

Worcester, Mass.—The shoe fitter should not attempt fitting shoe until arch pads are secured.

Scranton, Pa.—Dr. E. Sturge: Pads give temporary relief but metal supports are more curative because they are more efficient.

(33)—*Anterior arches that are weakening in natural foot shaped low heeled shoes can be held by new shoes more snugly fitted at the waist of the shoe, or by independent anterior arch cuffs that can be worn in loose shoes. The latter method combines in a single pair of shoes the possibility of easily changeable and variable degrees of support and freedom.*

Orthopedists agreed, 86=86%; disagreed, 3=3%; doubtful, 8=8%; no opinion, 3=3%.

Shoe dealers agreed, 27=77%; disagreed, 3=9%; doubtful, 3=9%; no opinion, 2=6%.

New York City.—Dr. Irving D. Steinhardt: Disagreed.

New York City.—Anterior arch cuffs will have the tendency to weaken further the muscles and ligaments of the anterior part of the foot.

San Francisco.—Shoes snugly fitted at the waist of the shoe are chilblain makers.

Providence, R. I.—Dr. Lowman: I should be doubtful in regard to the anterior arch cuff being worn in loose shoes. They are all right if you mean simply symptomatic treatment and not in reference to continuous treatment.

(34)—*Sole patterns of shoes that are to be worn most of the time should agree with imprints of bare feet as the latter are made while sustaining body weight.*

Orthopedists agreed, 79=79%; disagreed, 11=11%; doubtful, 8=8%; no opinion, 2=2%.

Shoe dealers, agreed, 29=83%; disagreed, 2=6%; doubtful, 2=6%; no opinion, 2=6%.

Hartford, Conn.—Dr. R. M. Yergason: A swing last for a swing foot but for no other.

Brooklyn, N. Y.—Dr. Walter Truslow: Agreed unless correction of deformity is undertaken, in which case shoes should permit correction.

Nashville, Tenn.—Dr. R. W. Billington: Applies only in case of feet of normal shape and attitude. Otherwise they should be more or less corrective in shape.

Denver, Colo.—Dr. R. G. Packard: Doubtful.

**Muskegon, Mich.*—A sole print of a deformed foot is not necessarily a good pattern for a shoe. Any shoe made to fit a deformed foot must be necessarily incorrect.

(35)—*Sole patterns of flexible shoes often exhibit extreme inward curving of their anterior parts, tending to over-correct longitudinal arches, and this is a benefit in some instances.*

Orthopedists agreed, 72=72%; disagreed, 19=19%; doubtful, 6=6%; no opinion, 3=3%.

Shoe dealers agreed, 17=48%; disagreed, 4=11%; doubtful, 8=23%; no opinion, 6=17%.

Boston, Mass.—I do not believe that the foot follows the shoe.

Portland, Ore.—Dr. Chas. R. McClure: Disagreed.

New Orleans, La.—Dr. Hatch: Doubtful.

Chicago, Ill.—I do not believe that flexible shoes correct arches much by their shape.

Boston, Mass.—Such shoes are good only for a very few inswinging feet.

(36)—*Flexible shoes should be made also with less extreme inward swinging of front parts, because there are many deformed and very serviceable feet that fit more perfectly in straighter lasts. Many such feet will never attain postures demanded by the most extreme inflaring shoe shapes.*

Orthopedists agreed, 90=90%; disagreed, 5=5%; doubtful, 1=1%; no opinion, 4=4%.

Shoe dealers agreed, 28=80%; disagreed, 1=3%; doubtful, 2=6%; no opinion, 4=11%.

San Francisco, Calif.—Flexible shoes never should be made with heels on them at all.

**Rochester, N. Y.*—Flexible shoes may be wrong, and it is impossible to do a correct job with wrong shoes.

New Orleans, La.—Dr. H. Theodore Simon: I am much opposed to flexible shanked shoes and also plates on the order of Whitman plates. I have found that shoe alterations, preferably the Ridlon wedge—in conjunction with extra heavy shanks in certain cases—give entire satisfaction.

(37)—*Heels should be low and broad for men's wear and of similar shape and height for women's shoes, or perhaps even a trifle higher for women's ordinary wear. Heel heights illustrate an instance of foot adaptability. Heels have been worn so universally and for so long that the primitive heelless condition has become less natural for most people. Foot efficiency theoretically may have diminished a trifle, but it cannot be measured or appreciated in low broad heels with broad bearing surfaces. For modern existence, it would be hard to disprove that heels are not an improvement over less desirable barefooted posture.*

Orthopedists agreed, 89=89%; disagreed, 3=3%; doubtful, 6=6%; no opinion, 2=2%.

Shoe dealers agreed, 31=88%; disagreed, 1=3%; doubtful, 0=0%; no opinion, 3=9%.

Chicago, Ill.—Dr. John Ridlon: The height of heel should be determined by the degree of possible dorsal flexion of the foot.

New York City.—Dr. Dexter D. Ashley: The idea that heels have been worn so universally and for so long that the primitive heelless condition has become less natural for most people, is to my mind a far fetched one. The child and early adolescent is still a plantigrade. No evolution is perceptible. Thus at 13 years there is a transmutation, a demand for high heels. The short heel cord is evident only after some years of high heels. Heel heights illustrate an instance of foot adaptability to abnormal position of weight bearing. Primitive man walked on the soft ground. Hard sidewalks and floors and much standing today demanded in the walks of life necessitate a heel.

Did you, "the barefoot boy with cheek of tan," have metatarsalgia? No.

**Rochester, N. Y.*—Best argument for shoes with stiff shanks to preserve arches.

Spokane, Wash.—Dr. C. F. Eikenbary: Doubtful.

**Lynn, Mass.*—Everett H. Dunbar: Heels should be made to harmonize with longitudinal arches. An arch with only one-eighth inch elevation at its highest point may be perfectly normal, and all bones may bear evenly on their articular facets. Not much elevation at the heel should be attempted with this type. Longitudinal arches of other feet may have a different curve with three-quarter inch elevation at their highest points, and higher heels are required in this latter type to give a comfortable poise. The natural curve of the longitudinal arch should be carefully considered in every individual case; and, when the right elevation of heel is discovered there

should be no deviation made from this level.

Philadelphia, Pa.—About 15 per cent of men and 30 per cent of women have short heel tendons and must wear higher heels.

Los Angeles, Calif.—Dr. Walter C. S. Koebig: Heels may be too low as well as too high.

(38)—*Continuous wear of very high heeled, pointed toed shoes that are fitted also continuously too tightly and too short, should be condemned very strongly on every possible occasion. The majority of foot deformities originate in this manner among young girls, and are continued among women who choose fashionable crippling styles for continuous wear without change.*

Orthopedists agreed, 100—100%; disagreed, 0—0%; doubtful, 0—0%; no opinion, 0—0%.

Shoe dealers agreed, 35—100%; disagreed, 0—0%; doubtful, 0—0%; no opinion, 0—0%.

**Des Moines, Ia.*—A. N. Canfield, Elwen-Field Shoe Company: Ninety per cent of all foot trouble is caused by misfitted shoes, and wrong types of shoes. More foot troubles can be eliminated by proper fitting of right types of shoes than by all other remedies.

**Memphis, Tenn.*—Shoes that are too short will cause trouble regardless of shapes.

(39) *The public should be protected against most dangerous varieties of shoes as they are protected against harmful foods and drugs, but manufacturers of fashionable shoe should not be held responsible for foolishness of some customers who wear them indiscreetly.*

Orthopedists agreed, 81—81%; disagreed, 9—9%; doubtful, 7—7%; no opinion, 3—3%.

Shoe dealers agreed, 29—83%; disagreed, 5—14%; doubtful, 1—3%; no opinion, 0—0%.

**Boston, Mass.*—The public should be advised but not forced.

**Boston, Mass.*—H. E. Hagan: Disagreed.

**Memphis, Tenn.*—Disagreed. Common sense is the only cure. *Caradine Shoe Co.

**Austin, Texas.*—Disagreed. E. M. Searbrough & Sons.

**Des Moines, Iowa.*—The salesman can help to protect the public, and can get their appreciation. A. N. Canfield.

**Wheeling, W. Va.*—Disagreed with first sentence. Agreed with second sentence.

**Iowa City, Iowa.*—W. H. M. Stewart: Agreed.

**Denver, Colo.*—Robt. H. Johnston: Disagreed.

**Dodge City, Kan.*—H. E. Ripple: Agreed.

**Norfolk, Va.*—Marc Gray, Hofheimers Brothers Company: Agreed.

**Moline, Ill.*—Leo S. Waynes, Waynes Brothers: Agreed.

**Memphis, Tenn.*—Zellner Shoe Company: Agreed.

Indianapolis, Ind.—Dr. H. R. Allen: If the purpose is to put better shoes on the market then information should be given to the manufacturer pertaining to orthopedic shoe construction, and reasons for such different construction.

**Milwaukee, Wis.*—To what extent are we "our brother's keeper"?

(40) *A caution might be stamped on certain shoes to advantage as follows: "These shoes are recommended highly for evening wear, but they may injure the feet if worn continuously."*

Orthopedists agreed, 80—80%; disagreed, 7—7%; doubtful, 7—7%; no opinion, 6—6%.

Shoe dealers agreed, 21—60%; disagreed, 9—26%; doubtful, 4—11%; no opinion, 2—6%.

**New Haven, Conn.*—Sydney Stores: Disagreed.

**Boston, Mass.*—Disagreed.

**Chanute, Kans.*—Disagreed.

**Memphis, Tenn.*—Disagreed. A caution on shoes to "stop, look, and listen" would have equal effect. Style is the Kaiser.

**Atlanta, Ga.*—R. A. Rankin, Foot Expert for Fred S. Stewart Company: Agreed.

**Lewiston, Me.*—J. J. Curtan: Agreed.

**Iowa City, Ia.*—W. H. Stewart: Doubtful.

Chicago, Ill.—Dr. Chas. A. Parker: It would be foolish.

Philadelphia, Pa.—Instead of saying "these shoes are highly recommended" say "may be worn." There is absolutely nothing but vanity to recommend them.

Los Angeles, Cal.—Dr. Lowman: I entirely disagree that we should give any recommendation whatever to any shoe which is not properly shaped, for evening wear, or any other time. It seems to me too much like side stepping, and taking a position of a flexible conscience, rather than being absolutely definite in our surgical demands.

Boston, Mass.—Manufacturers would disagree to such a plan because it would tend to diminish sales, and manufacturers are in business to make as many shoes as they can.

(41) *A definite arbitrary standard might be established profitably, and shoes that exceed this limit should be looked on with suspicion unless their special uses are clearly defined. Perhaps some such scheme might tend to discourage the invention of least desirable styles.*

Orthopedists agreed, 82—82%; disagreed, 5—5%; doubtful, 6—6%; no opinion, 7—7%.

Shoe dealers agreed, 22—63%; disagreed, 6—17%; doubtful, 4—11%; no opinion, 3—9%.

Philadelphia, Pa.—Utopic, not practical.

**Rochester, N. Y.*—Caution would be advisable.

(42) *Shoe retailers are obliged to cater to the demands of the public to a very important degree, yet they can influence opinions of thoughtful customers to an important degree if they wish, and should use means in their power to improve styles of shoes worn.*

Orthopedists agreed, 95—95%; disagreed, 2—2%; doubtful, 0—0%; no opinion, 3—3%.

Shoe dealers agreed, 33=94%; disagreed, 0—0%; doubtful, 1—3%; no opinion, 1—3%.

**Dayton, Ohio.*—I believe that you will receive no co-operation worth while in its extent from shoe dealers, especially those catering to working classes.—The Fred Hageman and Sons Company.

**Portland, Me.*—T. O. Vanamee: The greatest faults I find in the commercial fitting of shoes are, lack of understanding of the fitters, too high heels, short shoes from heel to ball, outflare toes.

**Memphis, Tenn.*—The shoe man cannot act as guardian for all customers. He cannot render the services required of a doctor whose skill goes beyond appearances. However, shoes properly fitted can give relief to many of the foot troubles, and this is sadly disregarded by many who buy as well as those who sell.

Boston, Mass.—Retailers are the chief sinners, not the public.

Boston, Mass.—Dr. H. W. Marshall: One important strategic point for influencing the public is the shoe store. Nearly everyone must pass this point, and those customers who are interested should be given easy means of learning about their shoes and feet. Manufacturers prepare booklets, describing their special lines, for retailers to distribute. Why not prepare a brief explanation of facts in a comprehensive, impartial way? Would it not stimulate interest of customers, benefiting reputations and sales of shoe dealers, and perhaps induce customers to consult physicians more frequently? The business of selling shoes would demand that cost of such pamphlets should be very small in order not to exceed profits accruing from them.

I made an experiment of collecting ideas and illustrations that were put into final form suitable for shoe fitters and customers by the editor of the *Boot and Shoe Recorder*, then published in that trade journal. There were no applications for reprints, I am told, although the latter would be furnished to shoe dealers by the *Recorder*, which journal is devoted to welfare and advancement of the shoe trade.

I do not believe that the public should be subjected now to much more special shoe education except on request. Let those retailers who are progressive have convenient means of enlightening thoughtful customers. Orthopedists perhaps can exert the greatest influence by agreeing as fully as possible among themselves, thus increasing the value of medical opinion in the minds of the shoe merchants and the public.

(43) *Rigid feet, fixed more or less in restricted postures, are commonly a result of abnormal adhesions between opposed movable joint surfaces in the feet, or of adhesions between tendons and smooth sheaths in which they slip normally, or of delicate inelastic fibers that form among muscles and their coverings during inflammatory processes.*

Orthopedists agreed, 96—96%; disagreed, 0—0%; doubtful, 4—4%; no opinion, 0—0%.

Shoe dealers agreed, 29—83%; disagreed, 0—0%; doubtful, 2—6%; no opinion, 4—11%.

(44) *Underlying causes of foot rigidity therefore usually are inflammatory processes in the tissues. Inflammatory processes, in turn, are commonly caused by bacteria or their products of growth which gain entrance to circulating blood and which then exert a harmful influence as bacteria lodge and grow in foot tissues, or as they circulating products pass through feet and irritate them in passing. Let it be explained in a general way that bacteria and their products get into circulation often during acute contagious fevers, during blood poisoning, or from some spot of chronic infection containing bacteria somewhere in the body.*

Orthopedists agreed, 84—84%; disagreed, 4—4%; doubtful, 10—10%; no opinion, 2—2%.

Shoe dealers agreed, 19—54%, disagreed 2—6%; doubtful, 2—6%, no opinion, 12—34%.

St. Louis, Mo.—Causes of foot rigidity are often traumatic ones.

Nashville, Tenn.—Dr. Billington: I agree except that I believe there is a considerable proportion of cases where stiffness is due to retractive ligament caused by strain producing muscle pasm without any infectious element.

Worcester, Mass.—Dr. Kendall Emerson: A used, term may refer to active or passive congestion. I should consider the the cause rather than bacterial infection in cases being discussed. Certain bacterial infection cause certain cases of rigidity. Should you assume a universal infective cause for rigid feet?"

(45)—*Feet are both weak and rigid in some instances. Shoe fitters will save their customers much trouble, and save good reputations of their chief, if they refer such persons promptly to orthopedic surgeons.*

Orthopedists agreed, 99—99%; disagreed, 0—0%; doubtful, 0—0%.

Shoe dealers agreed, 31—88%; disagreed, 1—3%; no opinion, 3—9%; doubtful, 0—0%.

San Francisco, Cal.—I think people generally seek proper advice.

**Greensburg, Ind.*—Take Dr. Scholl's corns and fit them with corrective appliances. Heals the doctor's advice.

**Des Moines, Ia.*—Or study these cases themselves so they will be able to give them best advice.

San Francisco, Cal.—Dr. H. L. Langneeser: Agreed.

**Milwaukee, Wis.*—What can the surgeons do?

(46) *Best shoes obtainable will not relieve these conditions satisfactorily alone. Feet may have to be immobilized during acute inflammatory stages or most desirable postures, or subjected later to various combinations of passive exercises, active exercises, manipulations, massage, and physical therapy to restore them.*

Orthopedists agreed, 99—99%; disagreed, 1—1%; doubtful, 0—0%; no opinion, 0—0%.

Shoe dealers agreed, 32—91%, disagreed, 0—0%; doubtful, 1—3%; no opinion, 2—6%.

**Memphis, Tenn.*—Shoe fitters can only give relief when the foot is restricted by outside pressure.

Milwaukee, Wis.—S. J. Brouwer: I believe that it would be a good thing if the orthopedic surgeons would demonstrate to the shoe retailer just what these are, in order that he may get his shoe customer interested in having the orthopedic surgeon do these things for him. We certainly have not the time in a busy shoe store to go through all the processes mentioned. We could send far more customers to the orthopedic surgeons if they would teach us how to diagnose our customers and talk more intelligently, so that they would be willing to go to an orthopedic surgeon.

(47) *Blisters, corns, calluses are very common and troublesome results of mechanical irritation from improperly fitted shoes, or improper use of proper shoes. Prevention of these troubles is the best procedure.*

Orthopedists agreed, 99—99%; disagreed, 1—1%; doubtful, 0—0%; no opinion, 0—0%.

Shoe dealers agreed, 35—100%; disagreed, 0—0%; doubtful, 0—0%; no opinion, 0—0%.

**Des Moines, Ia.*—Dr. W. J. Fenton: Improperly fitting hose play a very important role in causation of these troubles. Hose often shrink in washing and become too tight.

**Boston, Mass.*—Removal of offending pressure is the best remedy.

San Francisco, Cal.—Tips or caps on shoes are corn cultivators. All tips and bones should be dispensed with.

(48) *Bunions, with accompanying deformations of great toes, are results of improper shoes and are very common, but deformity of toes may result also from unrelated bone and tendon diseases, or even bone disease of other nature.*

Orthopedists agreed, 99—99%, disagreed, 0—0%, doubtful, 1—1%, no opinion, 0—0%.

Shoe dealers agreed, 32—94%, disagreed, 1—3%, doubtful, 1—3%, no opinion, 1—3%.

San Francisco, Cal.—Dr. Leonard W. Ely: Bunions are the result of hallux valgus, and this is congenital.

San Diego, Cal.—Dr. M. C. Harding: Bunions are rarely due to shoes alone.

**Muscogee, Mich.*—Bunions may be the result of improperly shaped shoes, but more often come from perforated hosiery. Put a foot held in a pointed toe cut out very much benefit from the most perfectly shaped shoe as the tag inside the shoe is crowding the toes together. I find that perforated hosiery produces more bunions than rheumatism or other diseases.

(49) *Bunions [illegible] by a change of shoes. In bad cases [illegible] corrective [illegible] and [illegible] relieve pain.*

Orthopedists agreed, 95—9[illegible]
1—1[illegible]; doubtful 1—1[illegible]

Shoe dealers agreed, [illegible]
2—6[illegible] doubtful 4—[illegible]

**Rochester, Minn.*—[illegible] many times [illegible] pressure [illegible]

Hutchinson, Kan.—Cannot always be relieved by changing shoes.

Muskegon, Mich.—I would suggest that surgical treatment for any bunion is unnecessary, as I have yet to find a case which will not respond to the proper kind of exercises, provided the patient is under forty years of age.

Chicago, Ill.—Dr. B. H. Monk: Do not believe a real bunion or real hallux valgus is relieved by shoes. It is possible to relieve a tendency that way, but not a really developed one.

Philadelphia, Pa.—Operation is the only cure for established cases.

(50)—*Diseases of bones, fractures of bones, paralysis of muscles, shortening of tendons with marked contractures and deformities all frequently need surgical care.*

Orthopedists agreed, 100=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

Shoe dealers agreed, 35=100%; disagreed, 0=0%; doubtful, 0=0%; no opinion, 0=0%.

New York City.—Dr. Henry Keller: Conservative treatment should be given a thorough trial, however, before operative procedures are instituted; as many cases are worse after operation than before.

These collected ideas require considerable effort to read through carefully. Larger numbers might exceed limits of patience of readers, and, with an overwhelming number, decision that each individual case must be handled in strictly individual manner would soon be reached.

Among the total five thousand points voted on by one hundred orthopedists, fifty to each person, there were in all 4,413 points of agreement, 272 points of disagreement, and 315 points of doubt or no opinion. These figures represent 88 per cent of agreement, 5 per cent of disagreement, and 7 per cent of doubtful points or points not voted on.

For the 1750 total points among thirty-five shoe men there were 82 per cent of agreement, 7 per cent of disagreement, and 11 per cent of other indeterminate points.

Matters agreed on often are dismissed quickly from mind, while disagreements are retained most clearly sometimes to disproportionate degrees as the result of controversies. It is of interest therefore to observe how well agreed orthopedists and shoe men may be when it comes to a vote, despite many confusing comments.

The familiar story of the group of blind men who examined an elephant can be recalled profitably. Each selected a different part; one examined the trunk, another the tail, a third the elephant's side, and so on. In the discussion that followed, complete disagreement was possible, although each examiner was correct within his limited sphere. The point to be emphasized is that controversies in that instance were wholly unjustified. There were no legitimate grounds for arguments. All data needed to be fitted together and retained.

Disagreements about many orthopedic subjects can be included in this class. Disagreements between shoe men and orthopedists to a considerable extent are of such nature.

Partisan viewpoints constitute a second important source for disagreements. A maker or seller of a special type of shoes dwells especially on *merits* of his particular lines. He may notice shoes of different types for comparisons of *disadvantages* of the latter with advantages of his own special kinds. An orthopedic surgeon may become absorbed in determining the benefits of surgery alone, and he may compare his successes with failures of non-operative methods. Such perfectly legitimate one-sided views abound, but, as they increase in numbers, they become responsible also for apparently never-ending controversies. A period of deliberation and readjustment now is becoming an increasing need.

Hope of restoration of order and of obtaining clear, accurate, general conceptions of confusing details concerning feet, lies increasingly in impartial fair comparisons—merits with merits, disadvantages with disadvantages, also in collection of all permanent facts and in fitting each into its proper place in the whole picture.

If such labors are not undertaken, then accumulated knowledge may become a hindrance rather than an advantage. Patients may receive increasingly poor treatment at times possibly while numbers of special methods and ideas continue to increase. All important regions of the body, it seems, should be surveyed in the same impartial, comprehensive way if orthopedic surgery is to progress in well balanced manner.

One way of reasoning is that, because one special type of shoes or one orthopedic method is good, others are bad. Instead, should there not be recognition that all methods or types have some object in their existence, and possess some advantages and some limitations of various sorts? Let it be remembered, too, that even very trivial advantages or disadvantages occupy positions of deciding importance occasionally under exceptional circumstances.

After looking over the scope of foot troubles, the need of renewed study of a few fundamental principles of muscle physiology especially, and of the physiology of other foot structures, becomes apparent. Shoe fitters should realize for the sake of their customers and their own ultimate welfare that they are not physicians. Physicians ought to realize that they do not know all details of shoe fitting. Each should keep within their own sphere of activity generally, with perhaps occasional exceptions. Yet each should learn as much as possible of the other's viewpoints for closest cooperation. Best shoe retailers should receive support most strongly of the medical profession, and vice versa.

There is good evidence now for accepting the majority of ideas that have been advanced concerning shoes and feet, with their advantages and limitations. Relief for weakened muscles is possible by means of foot plates, pads, strappings, improved foot postures that are assisted by certain shoes, special supporting heels, and some carefully designed and properly fitted shoes possessing reinforced shanks. The special type of support has to be selected according to individual needs and special limiting circumstances.

Weakening muscles can be relieved at times by hygienic measures that increase nerve tone and reduce vascular defects.

Too much and too continuous support must be avoided. Muscles can be improved by increased functional use, flexible shoes, special exercises, massage, and physical therapeutic means, each individual case responding best to individual care.

Corrections of deformities may be attempted at times by manipulations, exercises, strappings, appliances, casts, surgery, and by shoes themselves. Changes from bad shoes to those that allow contracted feet to expand naturally are important factors in foot corrections many times.

There are four main channels only through which influences acting on the feet possibly can exert themselves. These are through mechanical effects of functional use and support of body weight; secondly, through all external means including shoes; thirdly, through the circulating blood; and lastly, through controlling nerves. These four main groups of influences always should be considered in every individual case, for they all act in combination under normal conditions.

Responsibility for success or failure in treatment should not rest on particular types of shoes or medical measures primarily, but on persons who advise them. The agents or methods will be all right when they are used correctly for their intended purposes. Wearers of shoes themselves very frequently indeed are at fault. A real service in this field has been rendered by those orthopedists and shoe men who have made this survey possible, over one-third of the orthopedists and over one-ninth of all shoe men having responded to the questionnaires that were sent out. Acknowledgement of this service is hereby made.

A Circular Outdoor Pool

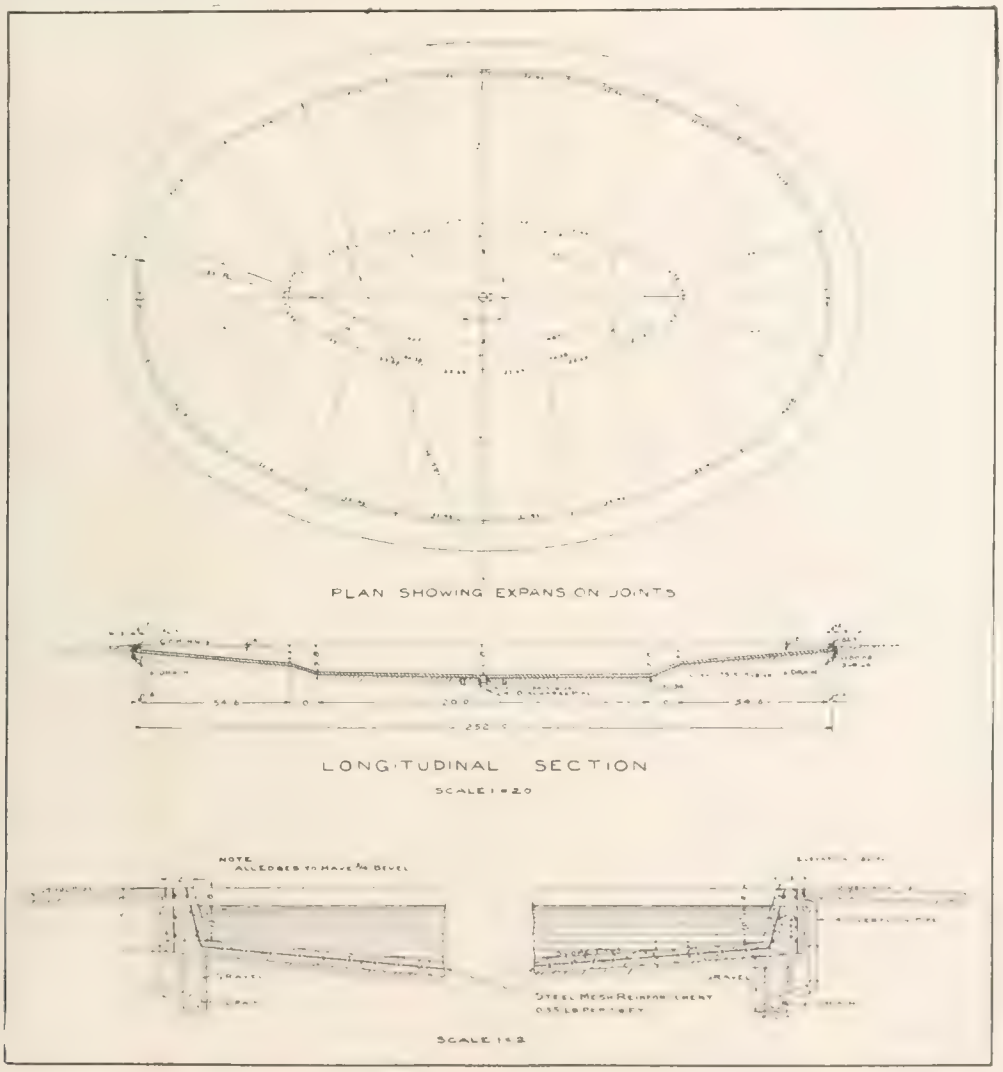
TO supply its citizens with healthful bathing facilities the city of Johnstown, Pa., last year constructed a circular swimming pool at a total cost of $24,932. The pool is located on land owned by the School Board and is part of a recreation center which when developed will contain a baseball diamond, tennis courts, and playground.

The oval type of pool constructed is described by H. Lee Wilson, City Engineer of Johnstown in *The American City*. The circular type of pool with graduated beach has proved particularly satisfactory for a public pool as the shallow water affords room for those who do not swim. A diving board at the center gives open space for the swimmers. The pool is 252 feet long and 165 feet wide, with a capacity of one million gallons. It accommodates over one thousand bathers at one time. The water depth at the center is ten feet gradually decreasing to only 15 inches at the edge. At a point 54 feet 6 inches from the edge there is a precipitate increase in the depth from 6 to 9 feet, thus giving ample depth for diving from the platform.

The floor of the pool is 6 inches thick reinforced with steel wire mesh weighing 35 pounds to the 100 square feet. The side walls are 12 inches at the top and 18 inches at the bottom, providing a batter on the inside face to offset ice expansion when the water is allowed to freeze for skating. The reinforcement is continuous from floor to wall, and the walls are additionally reinforced by 1-inch steel rods placed vertically 6 inches apart, and by three 1-inch horizontal rods at both the inside and the outside faces. A 9-foot concrete sidewalk, 6 inches thick, has been placed entirely around the pool. The walk slopes away from the pool, one-fourth inch to the foot, and this prevents surface filth from entering the pool. It is planned to build bathhouses, plans for which are now being drawn in connection with other improvements.

Drainage is by means of a main drain to an outlet under the center of the pool which carries the water to a 12-inch sanitary sewer. A concrete sump prevents the overloading of this sewer which is only a temporary connection, the permanent connection to be made as soon as the construction of the new 36-inch concrete storm sewer is completed.

The water for the pool is supplied from two distinct sources, the main



Plans showing the expansion joints, longitudinal section, and steel mesh reinforcement of the new Johnstown, Pa., swimming pool

The pool as it looks today completed. The floor of the pool gradually slopes toward the center where it is deep enough for swimming

supply coming from one 8-inch driven well which assures pure water, and a subsidiary supply coming from the city water supply. The water is supplied at a point in the floor near the center of the pool through a 24-inch pipe line which empties into the sewer in the same manner as the drainage system.

The final cost of the pool was as follows:

700 tons of blast furnace slag, delivered	$ 1,400
500 tons of river sand, delivered	1,700
1,000 barrels of cement, delivered	4,000
1,764 lineal feet of drain tile, delivered	352
181 lineal feet cast iron pipe and valve, delivered	1,700
12,000 pounds of steel reinforcing mesh, delivered	480
5,000 pounds of steel reinforcing rods, delivered	200
Rent on mixer, 60 days at $10	600
Labor	11,500
Miscellaneous, expansion joints, form lumber, tools, etc.	3,000
Total	$24,932

Pay of Medical Personnel

AFTER having passed the House and Senate and having been satisfactorily adjusted in conference the measure having to do with the pay of army, navy, and public health service medical officials was sent to the White House June 7 for the President's signature. The bill as passed is said to meet with the approval of the commissioned personnel of the U. S. Public Health Service as well as with the medical officers of the army and navy. The pay rate set forth in the act is as follows:

Assistant Surgeon General (Colonel) over 26 years' service, $4,000; first appointment above captain, $4,000; appointed under Sec. 24, Act June 4, 1920, $4,000; less than 26 years' service, $3,500.

Senior Surgeon (Lieutenant Colonel) over 30 years' service, $4,000; over 20 and less than 30 years, $3,500; first appointment above second lieutenant, $3,500; appointed under Sec. 24, Act June 4, 1920, $3,500; less than 20 years' service, $3,000;

Surgeon (Major) over 23 years' service, $3,500; over 14 and less than 23 years', $3,000; First appointment above second lieutenant $3,000; appointed under Sec. 24, Act June 4, 1920, $3,000; less than 14 years' $2,400.

Past Assistant Surgeon (Captain) over 17 years' service, $3,000; over 17 and less than 17 years', $2,400; first appointment above second lieutenant, $2,400; present rank July 1, 1920, or earlier, $2,400; less than 7 years', $2,000.

Assistant Surgeon (First Lieutenant) over 10 years' service, $2,400; over 3 and less than 10 years', $2,000; first appointment above second lieutenant $2,000; less than 3 years' $1,500.

In addition to this base pay there are also rental and ration allowances. These vary according to whether the officer has dependents. The sum for rental ranges from $480 a year for an assistant surgeon to $1,440 a year for an assistant surgeon general. The sum allowed for rations is $237.25 a year for one ration. The allowance for subsistence is based upon the cost of food in the calendar year 1922 from statistical estimates furnished to the President by the Secretary of Labor. If the cost of food in subsequent years should be reduced, the allowance for subsistence will be accordingly reduced. There is also an increase for length of service in the grade.

Nurses' pay is set forth in Section 13 of the Wadsworth-McKenzie bill which passed the House on May 12, 1922 and the Senate on May 22, 1922, was considered in conference, agreed upon, and signed by the President. The act took effect on July 1, 1922. The act provides the following annual rates of pay for Army and Navy nurses: Members of the Nurse Corps of the Public Health Service are not affected by this act:

First three years service, $840; Second three years service $1,080; Third three years service, $1,380; from tenth year on, $1,560.

In addition to their pay as nurses, superintendents of nurses receive a money allowance of $250 a year; assistant superintendents, directors, and assistant directors, $1,500 a year; and chief nurses, $600 a year. Nurses are also allowed 60 cents a day for subsistence, $20 a month for rental, the same as certain officers.

The Lehlbach-Sterling bill provides for reclassification of all civilian government employees. The bill passed the House on December 15, 1921 and was reported in the Senate on February 3, 1922 with several important amendments, some of which directly concerned nurses. In the bill as originally drawn, nurses were included with housekeepers under the Institutional Service. The Senate eliminated this service entirely and placed nursing in the Professional and Scientific, and Subprofessional services. In the former service, there are six grades with compensation ranging from $1,800 a year to $7,200, depending upon the type of work performed, the amount of responsibility, and other factors. Salaries in the Sub-professional Service are from $1,020 to $3,180 a year, divided into six grades. The nurses of the Public Health Service would be governed by this salary schedule.

A Vocational Guidance Bureau was created in June, 1920, under the management of a council which includes delegates of the ministries of Social Assistance, Education, Commerce and Industry, and Agriculture, together with representatives of various committees, industrial councils, and chambers of commerce. Conferences were held to interest the public and enlist helpers. Data about working conditions and the requirements of the various occupations have been collected.

A Decade's Progress Against Tuberculosis

New York City Has Reduced Its Death Rate from Tuberculosis by 51 Per Cent

By GODIAS J. DROLET, Statistician, New York Tuberculosis Association, New York City

TUBERCULOSIS has developed in almost direct proportion with the increase of humankind over the earth, with the abandoning of living in open air and sunlight and concentrating in towns and cities. Of all parts of the world where mankind teems most densely, New York City offers probably the best illustration. The result has been a staggering toll taken by the "Captain of the Men of Death." In New York, during the twelve years from 1910 to 1921 alone, the number of its victims known to have been taken has totalled 112,316.

City life with its congestion of population, its insufficiency of air and sunlight, its greater distance from fresh food supplies, its feverish activity, its waste of hours of daily travel by working people in addition to their day's toil, its thousands of human contacts in public conveyances with numberless opportunities for the spread of respiratory infection, has brought about a powerful combination tending to reduce resistance against disease and especially tuberculosis which is practically non-existent in country life. And yet, despite these handicaps, a marvelous advance against tuberculosis has been achieved in New York City which gives hope that the disease may either be eradicated as an important cause of mortality or eventually be reduced to a benign infection.

In 1910 tuberculosis in all its forms caused 10,074 deaths in New York, the death rate of that year having been 210 for each 100,000 inhabitants. In 1921, even though the city had increased by a million population to 5,751,859 inhabitants, the total number of deaths from tuberculosis was 5,922; the death rate being, therefore, in the last year, 103 for each 100,000 people. The death rate of 1921 was only one-half that of 1910, the exact reduction in mortality being 51 per cent. If the death rate of last year had been the same as that which prevailed in 1910, the total number of deaths would have been 12,079 instead of the 5,922 which occurred.

It must be admitted that in any population the general death rate from all causes may vary in different proportions than the tuberculosis death rate since a number of diseases have different evolutions, or, by scientific discoveries, as in the case of smallpox or diphtheria, they may even be practically wiped out. It is, therefore, all the more interesting to note that in New York tuberculosis has been reduced to an even greater extent than the general mortality though in the latter there have been remarkable reductions. In 1910 the general death rate in New York from all causes was 16 for every thousand inhabitants. In 1921 it was only a little over 11 for each thousand. The reduction in the general death rate during the past twelve years, therefore, has been 31 per cent whereas the tuberculosis death rate has decreased by 51 per cent.

Prevalence in New York

The detailed figures of tuberculosis mortality in New York City since 1910 are given in Table I, and the course of the death rate is graphically illustrated in the accompanying Diagram No. 1. Looking over the details for each year it is interesting to note, first, that up to 1918 the annual number of deaths averaged about 10,000; second, that the low level of 6,000 deaths a year has now been reached, despite the interruptions of the war and of the influenza epidemic of 1917 and 1918; third, that up to 1916 the death rate from tuberculosis other than pulmonary, such as gland, bone and meningeal forms, which are mostly confined to children, was practically constant between 27 and 30 for each 100,000 inhabitants, but that thereafter it quickly dropped to 13.5. Tuberculosis of the latter forms in children results largely from a bovine source of infection. It is probable that the general pasteurization of milk, enforced in New York City since 1915, has been, among other factors, very important in accelerating the decline registered in 1921 when the rate was only half what it was in 1915.

It has always been maintained by anti-tuberculosis workers that the progress of the fight against the disease should be registered to its largest extent among children, since they, more than other groups of the population, react more readily to infection. In New York City the total number of deaths of children under fifteen years of age from all forms of tuberculosis was 1,199 in 1910, whereas in 1921 it was only 574. This reduction in the absolute number of deaths among children had occurred in the face of an increase in the total number of children of that age of almost 50 per cent. It is therefore evident that the death rate among children exposed has fallen even faster than among adults.

*Bulletin, New York Tuberculosis Association, January, 1922

*Table I.—New York City Tuberculosis Mortality, 1910 to 1921

Year	Number of Tuberculosis Deaths			Rate per 100,000 Population		
	Pulmonary	Other Forms	All Forms	Pulmonary	Other Forms	All Forms
1910	8,692	1,382	10,074	181	[illegible]	[illegible]
1911	8,790	1,460	10,250	180	[illegible]	210
1912	8,591	1,390	9,981	173	[illegible]	201
1913	8,601	1,430	10,031	171	[illegible]	199
1914	8,918	1,372	10,290	173	[illegible]	200
1915	8,825	1,424	10,249	169	[illegible]	196
1916	8,411	1,237	9,648	159	[illegible]	182
1917	8,[illegible]	1,317	10,[illegible]	164	[illegible]	188
1918	8,779	1,319	10,098	160	[illegible]	184
1919	7,[illegible]	[illegible]	8,498	132	[illegible]	[illegible]
1920	6,165	970	7,135	109	[illegible]	[illegible]
1921	5,143	779	5,922	89	[illegible]	[illegible]

POPULATION OF NEW YORK CITY according to Federal Census:
April 15, 1910 1,766,883
January 1, 1920 5,620,048

RATES DURING INTERCENSAL YEARS are based upon the estimated mid-year population [illegible] arithmetical progression.

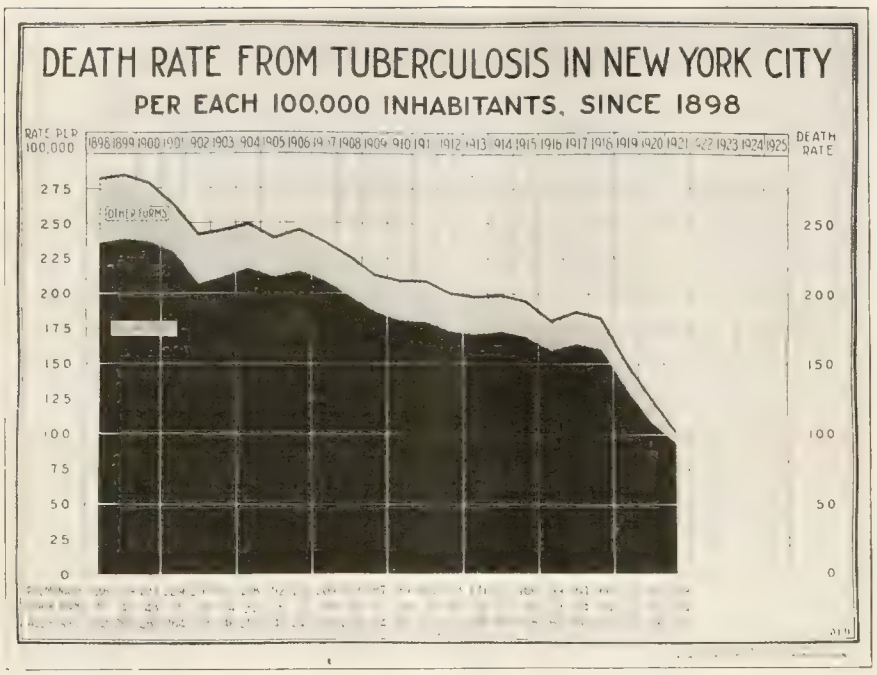


Diagram I.

Another interesting fact that concerns tuberculosis in New York is that the disease is being conquered more rapidly than in the rest of the country. A comparison of its course in New York and in the United States registration area, which now includes approximately 87,000,000 people, is shown in Diagram No. 2; the detailed mortality figures being given in Table II. It will be seen that the death rate of New York exceeded in 1910 that of the United States area which also contains groups under the favorable conditions of rural life by 31 per cent. In 1920 the excess of the city rate over that of the United States was only 11 per cent. The tuberculosis cloud hanging over New York has, therefore, steadily decreased. Figures for 1921 for the entire United States are not yet available; but with the continued decrease in the city, it is probable that the two rates may now be equal.

What are the resources and methods which New York has marshalled and utilized for its fight against the tubercle bacillus? First, let us say that a community, like any other living organism, responds or reacts in relation to the degree or extent of stimulus acting upon it. In studying the specific anti-tuberculosis measures of New York City, a consideration of its local difficulties and necessities will better explain the organization. New York, though mentioned under one name is far from being a homogeneous community. While it contains in Manhattan the most congested tenement and business life, it also includes in its outlying boroughs of Queens and Richmond distinctly rural districts where sections of the city's population, far removed from medical and social conveniences, are left much to themselves for their battle against disease. Then again in its racial composition New York City contains a strange collection of nationalities. It has received and is attempting to assimilate more than one million Jews from some of the poorest parts of Europe. It has an Italian population estimated at 500,000, making it one of the largest Italian cities of the world. New York also includes 175,000 colored people, with all their susceptibility to tuberculosis, especially under conditions of northern city life. Finally, racial groups, like the Irish and those recently coming from agricultural parts of the world or from the country in America, have come to face the city's congestion and conditions with all their greater susceptibility to the development of tuberculosis as compared with city-dwelling stock. Most of the above groups are of recent arrival and have been thrown into the melting pot under conditions often involving great hardships in their readjustment to city life and they furnish an easier prey to tuberculosis than the native stock.

†Bulletin, New York Tuberculosis Association, December, 1921.

†TABLE II.—TUBERCULOSIS* MORTALITY IN NEW YORK CITY AND IN THE UNITED STATES (REGISTRATION AREA) SINCE 1910

Year	Number of Deaths		Death Rate per 100,000 Inhabitants		Excess of New York Rate
	U. S. Area	New York	U. S. Area	New York	
1910	86,309	10,074	160	210	31%
1911	94,205	10,250	159	210	32%
1912	90,360	9,981	150	201	34%
1913	93,121	10,031	148	199	35%
1914	96,903	10,290	147	200	36%
1915	98,194	10,249	146	196	34%
1916	101,396	9,648	142	182	28%
1917	110,285	10,142	147	188	28%
1918	122,249	10,098	150	184	23%
1919	106,985	8,498	126	152	17%
1920	99,916	7,135	114	126	11%

*All forms.

Local Measures and Agencies

With the preceding composite picture of New York in mind, it is easier to understand the variety and number of institutions that have been found necessary to fight so ubuquitous a foe as tuberculosis in so large and diversified a community. No single agency has been found sufficient though many common objectives in the organizations have been developed.

First among the measures utilized by New York against tuberculosis must be mentioned the remarkable Sanitary Code which the city has created for its protection. This is constantly being strengthened by the Board of Health and its Advisory Council. The foundation for health work which it has laid has served as a model for many other communities. The local Sanitary Code requires not only registration of tuberculosis but has been followed by sanitary supervision, from the time of the discovery of cases to their final disposal. The Department of Health, besides furnishing laboratory facilities for the examination of sputa, also operates the large Municipal Sanatorium at Otisville, in Orange County, with 575 beds, and Riverside Hospital, with 225 beds. It also maintains nineteen tu-

berculosis clinics in various parts of the city. Not only does it watch carefully over the enforcement of the registration enactment, but it follows up for sanitary supervision and instruction every case that is not under the care of a clinic, physician, or hospital, thus limiting infection and protecting the community. The cases followed for sanitary supervision, known as "at home" cases, have been as many as 10,000 on certain days of the year. To them the Department of Health sends visiting nurses, and occasionally even medical inspectors. In this type of home work the Department of Health has paid since 1910 no less than 1,100,000 calls.

The Department of Public Welfare of New York City maintains the large tuberculosis hospitals, Sea View and Metropolitan, in addition to subsidizing a number of beds in private hospitals for the care of the tuberculous in different parts of the city. An average of 3,000 beds have thus been filled daily by tuberculous patients receiving proper care and removed from the danger of infecting their families.

In addition to the municipal sanatorium, New York State reserves about 125 beds for city patients in the State institution in the Adirondack Mountains.

There are also in New York, covering the entire city, the special tuberculosis dispensaries, members of the Association of Tuberculosis Clinics, which, as stated above, include nineteen clinics of the Department of Health, four of the City Department of Bellevue and Allied Hospitals, and eight others maintained by private hospitals or health agencies. All these clinics have banded together for the thorough covering of the city with a follow up system of care and instruction in the home of every tuberculosis patient coming to them for treatment. More than forty thousand people, one-half of whom are children, were kept under the care and observation of these clinics in 1921 alone. Since 1910 they have examined nearly 200,000 members of the community, securing in most of them some improvement and correction of physical defects in addition to caring for the tuberculous. Visiting nurses from these clinics pay from sixty thousand to seventy-five thousand calls annually to the homes of patients and their families. This service is in addition to the sanitary follow-up of the Department of Health for the "at home" cases, the clinics confining their visiting to the clinic patients. The type of instruction given by clinic nurses is unique.

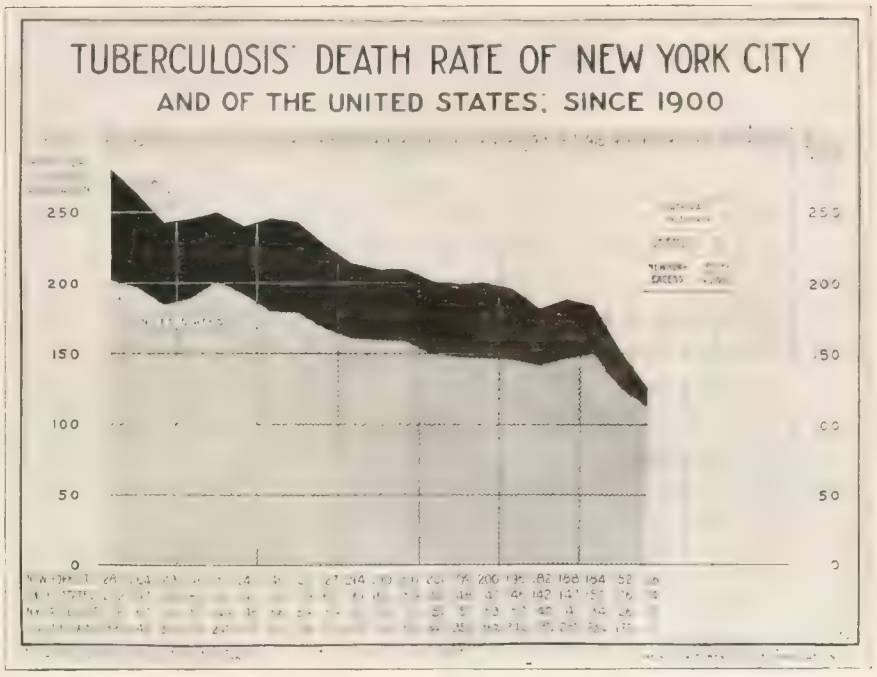


Diagram II.

It is based upon actual knowledge of home conditions and familiarity with the result of the medical examination of their patients and is therefore in direct answer to the needs and requirements of each case. The instruction is individual and personal as well as backed up by effective social service work.

Causes of Phthisis Decline

The Department of Education also lends its broad support to the furthering of health measures for the protection and building up of school children. Some 120 open air classes are maintained for specially selected children from tuberculous families. The Division of Child Hygiene of the Department of Health in its regular inspections of school children uncovers a variety of physical defects which are brought to the attention of the parents and medical authorities.

New York City has been one of the first to extend attention to the so-called pre-tuberculous child. Preventoriums, either in the country or on ferry boats used as day camps, have been developed and utilized.

Finally, the local tuberculosis associations have been especially active throughout these years in promoting the care of the tuberculous and in demonstrating the latest methods in this type of public health work. The Committee on the Prevention of Tuberculosis of the Charity Organization Society, and its successor, the New York Tuberculosis Association, the Brooklyn Tuberculosis Committee and other local organizations have kept constantly on the alert to spread knowledge of the nature, care and prevention of tuberculosis. Public education and other methods of fighting the disease, traveling health exhibits, improvement in dispensary care of tuberculosis, the development of open air and nutrition classes for children, the rehabilitation of former sanatorium patients, the strengthening of auxiliary relief organizations have all been fostered and supported when necessary. Charitable and relief societies have been careful to give special attention to the demands created by tuberculosis; and the Home Hospital experiment of the Association for Improving the Condition of the Poor, the Altro Shop for workingmen recovering from tuberculosis, of the Jewish Tuberculosis Committee, the Health Centers of the Red Cross and of the Brooklyn Bureau of Charities, and other developments have been notable products of these societies.

Passing from the consideration of the organization developed by New York against tuberculosis, we may now summarize more definitely the causes of the decline of this disease in the city. They can be condensed into the statement that all measures and agencies which have decreased the opportunities for massive infection and which make for the strengthening of human resistance or the maintenance of health have been effective in reducing tuberculosis; therein, in fact, lie the whole cause and preven-

tion of tuberculosis. More specifically speaking, the general causes of the decline of tuberculosis in New York City includes the following:

First, the general rise in the standard of living and the improvement of working conditions.

Second, the sanitary improvements throughout the city which exert a wide influence for the maintenance of health. Proper drainage, adequate disposal of sewage, and cleanliness of water supply are all most important in the improvement of health conditions.

Third, the tenement house law in New York City has brought air, if not sunlight, into every room where people live.

Fourth, it must be acknowledged that the coming into the city of a large group of people of Jewish stock, noted for their immunity to all diseases that are common to congested life, has injected a blood more resistant than that of other groups into the city's population and has materially lowered the local tuberculosis death rate. A recent study of tuberculosis mortality in the different sanitary areas of the city has revealed their very great influence in this direction. It was found that, in districts like Mt. Sinai, Corlears, Stuyvesant and the extreme lower East Side, which are largely Jewish, much lower rates prevailed than in similar sections where other nationalities reside.

Fifth, New York City has always retained a greater proportion of immigrants than other parts of the country. The application of the special immigration laws recently has practically prevented the incoming of racial groups from the Near East and poorer sections of Europe who always found it difficult to readjust their lives under the strange conditions of the new world, and who have contributed in the past a heavier mortality than the native stock.

Sixth, the advent of prohibition, even if its observance is not absolute thus far must be recognized as playing a part in the reduction of tuberculosis, or the misery that led to it. Until recently, certain sections of the city were noted for their number of lodging houses which drunkenness kept filled with human derelicts headed straight for the hospitals. These lodging houses have lately been disappearing.

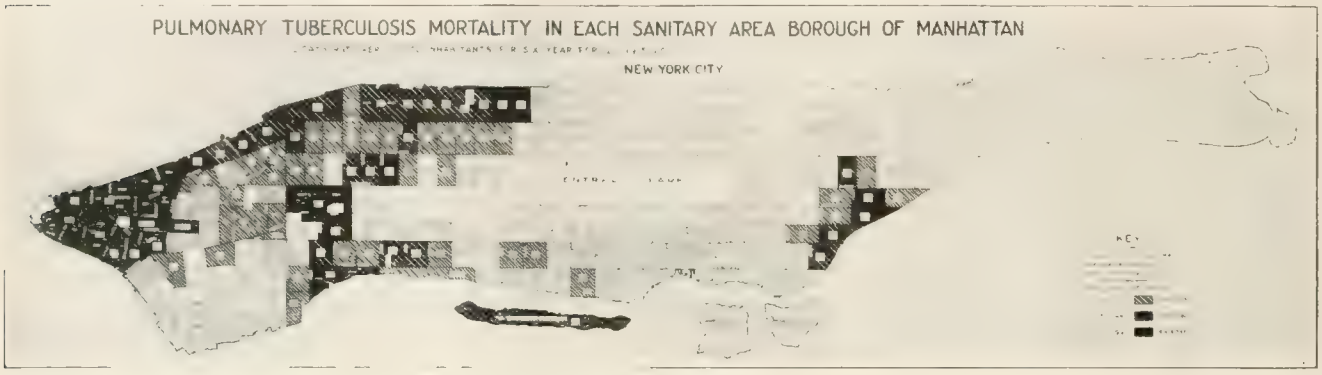


Diagram III.

Tuberculosis in the Future

The more specific anti-tuberculosis measures which have been developed in New York during the past few years and which, in addition to the general causes, have been accelerating the decline of tuberculosis, have included, as stated previously, legislation compelling registration of all pulmonary cases, anti-spitting laws, and pasteurization of milk. To these were added the supervision by the Department of Health of cases not under medical care, the requirement of a medical examination of all food-handlers before they could ply their trade, with consequent refusal to license those suffering from communicable diseases, and the constant segregation of advanced cases of tuberculosis in hospitals. The value of this last measure can be better appreciated when it is stated that at no time in all these years have there been fewer than 6,000 cases of tuberculosis in hospitals or in sanatoria out of town, with numbers rising as high as 9,000 in certain years. In relation to the total number of cases registered in the city which, during the past few years, has varied between thirty and thirty-five thousand, it may be said that in New York City there always has been at least 25 per cent of all known cases of tuberculosis under segregation.

Finally, the anti-tuberculosis associations have maintained their educational and health programs with increasing energy, until now they are demanding that malnutrition in children be wiped out and that all industrial workers have the benefit of annual medical examinations.

In New York City, tuberculosis is no longer the largest single cause of mortality. This deplorable eminence has been reached, instead, by heart diseases, though the unity of the cause under the latter group may well be questioned.

With the success already achieved in the fight against tuberculosis, it might be well to observe in what corners the disease is making its last stand. It is highest, first of all, in the Borough of Manhattan, and its greatest distribution is localized in the lower West Side, with island concentrations in the Bellevue middle East Side district and in some of the sanitary areas in the upper Harlem district. These strongholds of the White Plague are accounted for in certain racial groups, among whom a greater susceptibility should be recognized and more care devoted to their protection. People of Irish agricultural stock, the colored, young Italian girls, incoming immigrants, must all be recognized as being in more imminent danger of breaking down with tuberculosis under the conditions of city life, and special work among them should be undertaken. The present arrangement of clinic work on strictly district methods, with little regard to the character of the population, is after all, only a mass attack and should be followed by more intensive and special work in the sections just described where there is a higher incidence of tuberculosis. A study of the tuberculosis prevalence in different parts of the city as revealed by Diagram III should enable more direct and effective work.

Looking over the general population, work with certain age groups

should be emphasized. The greatest danger from tuberculosis is first among infants. At that time of life, when the body is not yet built up, resistance is low and infection frequently spells disaster. Not only the milk, but all dairy products used by children, should be pasteurized.

Among school children there is not quite the same danger since that period of life is noted for its freshness and soundness of organs and a more general enjoyment of health. However, there is a portion of them among the 25 to 30 per cent which many surveys have shown to be undernourished that will develop tuberculosis later. A few investigations in the latter group have further revealed that incipient or smouldering tuberculosis may be present in as many as one-third, it being the cause of malnutrition. Attention to this group will therefore greatly reduce the toll of tuberculosis in later years.

At the time of puberty, a period of disturbance generally coincident with the leaving of home or school for the purpose of going to work, strain is added to weakness, and the first tuberculosis harvest after infancy is reaped. To these particular years of life, health organizations should give more attention, should demand medical examinations, correction of physical defects, and more rest taking than is required for other groups.

Among adults the greater danger from tuberculosis among workingmen should receive separate attention. Thorough examination of all workers, men and women in shops, stores, or offices, should be instituted. Conditions should be ended under which such workers wait until advanced disease drives them too late to medical institutions for care, as is now often the case.

The most significant part, therefore, of the tuberculosis program is that it opens wide the door for the maintenance of health in ways which its methods have shown to be successful. By not merely confining its efforts to the care of the tuberculous, but by recognizing that all things which make for the building up of resistance make for the maintenance of health, the tuberculosis program has opened possibilities which every health agency may well emulate and enlarge upon. The tuberculosis associations are fast becoming public health associations; the tuberculosis clinics are likewise becoming health centers. In the future their primary work will not be the care of the sick, but the assuring of health and productive enjoyment of life to all.

The Role of Mental Hygiene in Education*

Schools Will Advance Insofar as They Apply Mental Hygiene Rules

By SIDNEY I. SCHWAB, M.D., Washington University, St. Louis, Mo.

AT FIRST thought there seems to be no important connection between mental hygiene and education. A consideration of the question, however, will show that no educational attitude that ignores mental hygiene can be either good, useful, or socially respectable. Mental hygiene is one of the newest efforts to use the accumulated knowledge of the nervous system for the benefit of the community. What mental hygiene is, how the movement started, or, at least, how it received a new impetus scarcely twelve years ago is the best introduction to this lecture.

A book called "A Mind That Found Itself," by Clifford Beers, tells the story of a young man, a student of a great college, who entered on his university career with four ambitions, to secure election to a certain secret society; to become one of the editors of the college journal; to become business manager of this paper; and to get his degree: All these four things he did and in June, 1897, he graduated. For three years after leaving college he worked at various things, sometimes with success, and other times not. Always he was haunted by certain fears and he was forever conscious of certain nervous symptoms which had burdened his life as a college student three or four years before. In 1900 he became mentally so ill that he had to give up his work and for the next three years this young man was sent to various hospitals, asylums, and private sanatoriums, a patient under treatment, guarded, deprived of his freedom, and under guardianship control. In this book he relates his experience, his symptoms, and all the curious and interesting phases of an acute mental illness. As he progressed with his illness through various institutions, treated by various methods, some intelligent and others very stupid, he became convinced that out of his own experience he had a message to deliver, and a thing to put over, and this was to acquaint as many as possible with the problem of the insane and to awaken in the minds of all who would listen an attitude of sympathy, of kindliness. interest, and concern in the recognition, treatment, and above all, the prevention of insanity.

The book is an autobiography, a frank, sincere, and fair statement of a man's experience with his own disordered mind, and the social and institutional methods by which such a state of things is handled. Out of this book came a very wonderful thing. Many read it and among the many were men and women whose souls were touched and whose vision was stimulated, and who determined that no longer, in this country at least, would the insane be without a national organization whose primary purpose was to see to it that as much knowledge as could be obtained about insanity would be properly spread among the people and that the care, treatment, and prevention of insanity would be made a subject of national scope. With funds furnished by this group, the National Committee for Mental Hygiene was started and the mental hygiene movement began, a movement which has penetrated many states and through which many state societies bearing this name have been founded. *The Journal of Mental Hygiene*, in the pages of which are reflected the story of the progress that is being made in the knowledge of insanity particularly from the social point of view, became the official organ of this Society. Clifford Beers is now secretary of the National Committee and his hard won experience in the difficult situation which confronts all minds that have gone astray has been turned to the advantage of all future or past victims of this disease. A significant quotation from

*Delivered as a lecture in the second series of Washington University free public lectures on Medical Subjects and Public Health.

the pages of Mental Hygiene will serve to show the close connection which exists between mental hygiene and education.

It outlines the purpose of mental hygiene, which is to work for the *conservation of mental health*, to promote the study of mental disorders and mental defects in all their forms and relations, to obtain and disseminate reliable data concerning them, to help raise the standards of care and treatment.

Responsibility of Education

From the very beginning, interest in the child began to influence the workers in mental hygiene for they saw that many cases of insanity could be traced back to occurrences and experiences in a child's life, and the influence of wrong ideas and defective environment. As soon as the mental hygiene, movement leads back to the child and the adolescent, just so soon is its relation and intimate connection with education apparent. In a child's life the school stands out as the great formative mechanism of the mind and personality. A perfect education would so form and mold a child's growing nervous system that it would be successful in resisting the environmental conflict upon which a less elastic or trained nervous system would be completely or partially wrecked.

Leaving out of consideration the influence of destructive diseases on the brain, congenital malformation, and the effect of injury, it can be truthfully said that a large percentage of insanity might be prevented by proper mental training and discipline. How large this percentage may turn out to be is, of course, speculative but it is large enough for serious consideration. Not only does mental hygiene infiltrate the education question in this negative way, but it throws light on the normal human nervous system. When I speak of the nervous system I mean chiefly the mind which is nothing more or less than the "brain in action." There is a steadily accumulating lot of data which can be effectively used in the attempt to understand the intelligence of the child, its reactions, and the intricate series of reflexes, instincts and emotions of which it consists. The examination of these intelligences with the idea of finding out as much about them as possible in order to develop schemes of preventing improper use and subsequent bad results, is one of the most important tasks of mental hygiene.

For this reason education must be considered broadly from the standpoint that has come into fashion at the present time. Such a view is called biological because it attempts to see things through the history of the human race. If we think of education as the thing that enters into the life of each of us, some sort of definite realization of its importance can be obtained. It may be thought of, then, as a training or preparation which aims to fit an individual to meet successfully the contest with his environment. This thing he faces and must continue to face from his first moment of existence until he succumbs to that struggle by death. When this preparation is consciously prepared for and institutionalized, then there is an educational system or organization. Schools, colleges, universities have arisen out of the need, often dimly perceived, that such a preparation must be more efficient through some kind of organized effort.

A good deal of this thing called education is not and has not been recognized from the standpoint here laid down any more so than the urge towards a superior type, which results in the impulse called evolution, has ever been a purely conscious urge. It is obvious that with a notion of education implied in a definition such as this, a good deal of thought must be given to the planning of a proper method of imparting to the child such of this accumulated material as will make of him the best possible contender in the struggle of existence. Not only that, but as long as he lives he must, so to speak, keep himself fit and efficient as a part of a social organization whose purpose in a collective sense is successfully to triumph in the struggle.

In speaking of this struggle I am trying not to be dramatic, but rather do I want to suggest something in the nature of a biological effort. The term struggle in this sense rather connotes overcoming of difficulties. There are two kinds of struggles, one the individual, the other the collective or social, and in either or both, education in this sense is most important, and upon its proper use depends the success or failure, the ease or difficulty with which the final result is reached. The factors of this struggle are as manifold as the environmental conditions themselves. There are, however, certain facts open to any curious or inquiring mind, and it certainly is within the power of such a mind to attempt analysis of the multitude of factors out of which this struggle grows.

Education being the instrument by which the struggle is made more fair to the individual, it is worthwhile to inquire into some of the ways by which a person may become educated and also to find out something about the things against which the struggle is directed and by what mechanism the person so engaged may be properly directed.

The infant or child must then be considered. The human factor is made up of what is called a mind, or intelligence, and a body, a very complex kind of mechanism which can transfer the content of that mind into various kinds of conduct. In addition, there are collected in this mechanism various impulses, tendencies, automatic acts which are called instincts, which create or modify conduct in ways only partially understood. For our purpose at present it makes no difference whether this machine we are considering is made up of a body and a mind of different origins or if the whole thing is one piece of intricate coordination. This, then, is the human machine for which various adaptations are essential in order to fit it to exist in an environment which is antagonistic to it.

Must Use Intelligence

In educating the child, it is clear that the most important medium through which this effort is to be made is the intelligence; that is, the intelligence of the taught and the teacher. The latter is composed of the collective intelligence of the community and the boiled down intelligence of those who have been engaged in teaching the previous generations of the human race. The record of that lies in printed books, the traditions, and all the documents that remain today in our possession. Upon the budding intellect of the child all this mass of experience must be directed as the formal aspect of education demands.

When the schools with their huge numbers of children to be educated loom up before us, then the real and tangible problem comes clearly into view. It is mass education that presents a test of any method, and it is this mass that gives to mental hygiene its opportunity. Few realize the problem, its complexity, and the enormous numbers concerned. It is well to start with some concrete notion of the task that mental hygiene has set for itself. In the State of New York there are attending public

schools about one million children; of this number forty-five thousand belong to the mentally deficient class. In the city of St. Louis there are about ninety thousand children in the schools. Of this number, if the percentage holds good, there are about thirty-six hundred mentally deficient. In the whole of the United States about thirteen million children attend the public schools today and of that number there must be roughly five hundred thousand deficient children. If the New York statistics, carefully collected by the Commission for Mental Defectives, apply to the whole of the United States about four per cent of all school children belong to this class.

Provide Special Classes

The first task of mental hygiene, then, is to take these children out of the regular class rooms and to give them special training and care. Out of this mass of the mentally deficient there are a certain number that will automatically turn their defect into anti-social acts and behavior and finally come into definite conflict with the law. Another important aspect of the mentally deficient class is that they tend to become a drag upon the legitimate progress of the whole group with whom they are associated. Mental hygiene must step into the schools and separate this group, see to it that some kind of constructive effort is made for their proper education, training, and future care. At the beginning, it is not only selection but after care that must be thought of. Each child admitted to school should from time to time be examined by any of the numerous intelligence tests known now by various names which aim to compare the age level of a child with an intelligence level that has been determined by examinations in many normals. This gives a rough approximation of the intelligence level. When this level is far below the normal, the chances are that a lower intelligence is present. If from time to time such tests are made on the same child and no progress is found, then the defect is one that should exclude the child from normal classes. These tests are, of course, backed up by the observation of the teachers so that there are two kinds of judgment always present. If there is proper medical supervision of the school, each child that is found to be subnormal is examined carefully to determine if there is some factor apart from the nervous system that might be the cause of the mental backwardness. Defects of sight and hearing and other defects are often found and their correction turns the child sliding down the pathway of mental deficiency into the pathway of the normal.

Path of the Mentally Unfit

Let us follow a moment the fate of a child that is found to be mentally deficient if wholly unguarded by mental hygiene. After a while the child is turned loose from school, even after attendance at the special schools which almost every community is forced to have these days. The pathway from the moment of discharge frequently leads directly to the courts for infringement of law. These offences are at first trivial, then more or less important as idleness, laziness, and criminal opportunity present themselves. From the courts, even if they be juvenile ones, the way towards homes and reformatories is so direct that it is a wonder that any escape. From this station to the prison and death house in many instances there are not many milestones in years.

If the problem of the mentally deficient is approached from the point of view of mental hygiene, the fate of the child is quite different. Such children find their way into special clinics where trained experts in nervous diseases, psychologists, and social workers are at work. These are concerned in the problem of the mentally deficient as a primary thing. Their outlook is sufficiently social to see in this discarded material a potential value that under proper guidance and under expert direction may be trained to useful lives and may reach levels of contentment that may block the anti-social nature of many of their impulses. In such clinics, the children are separated into various groups, each one of which may be directed towards a definite purpose. The more advanced are sent to special classes the chief function of which is training for future employment at that grade of intelligence level that is fitted to the special intelligence at hand. Groups are directed to wage earning colonies or selected homes, all of them with the goal of employment in mind. The whole effort is imbued with the spirit of positive achievement as contrasted to the negative fate of prison, idleness, prostitution, and illegitimacy.

No state in the Union has begun to approach the solution of the mental defective in the way that has been here outlined. No state has been courageous enough to face the tremendous outlay in money, effort, and personnel. In the State of New York, which is doing the most, 70 per cent of the defectives are under no supervision whatsoever; that is, thirty-two thousand of the forty-five thousand are without any care, direction, or supervision at all. Translate into your own state or city some of these percentages and gather in your imagination the burden of crime, destitution, immorality, and illegitimacy. In this way you may see what society is paying for a system that discards, except in a small percentage of instances, the collected experience which mental hygiene has made available for use.

I have tried to show how mental hygiene must infiltrate into these earliest years of the school and how it must see to it that the mentally unfit, even if temporarily in that condition, should be segregated for special training and care in order that this large number of boys and girls can reach a certain level of achievement and can be made to be of use thus diminishing if not completely preventing the chances of criminal careers. This may be termed, as far as education is concerned, a kind of negative aspect. It is far more interesting perhaps to look into the activities of this same movement when it functions in a more positive way and when it attempts to examine into the methods of teaching through the intelligence of the child and through that of the teacher by what may be termed mental discipline, using this phrase in its old usage.

In the sense that I am using the term mental hygiene, it should suggest that it makes use of all the knowledge at our disposal of the nervous system in all of its manifold activities and that it is especially concerned with the utilization of such physiological facts that have been obtained from the study of the individual in and out of the laboratory and the wards of a hospital. No one, as far as I know, has made an effort to collect these experiences so that they may be easily available to the educator or the teacher. It will be possible therefore to touch only on the more significant phases of this very broad subject.

When a school system is examined, that is, a system of teaching that is applicable to large numbers of children, such as would be represented by the total attendance of one of the grade schools, one of the things that stands out is the tendency to regard all of the children as having the same mental abilities, identical tastes, and identical natural endowments. A

plan of instruction is put through, therefore, to meet the average mental needs of such a group and an assigned task or sets of tasks are measured out. The rate of progress is the rate of progress for the whole group which is of course that of the minimal ability of that particular group. What has the physiology of the nervous system to say to this and what has it to suggest as a remedy?

The answer is clear. It would point to the fact that the most important single factor in the development of the human race is that of differentiation of types and that differences are more significant than likenesses. Progress consists in the proper utilization of differences and a competition in the items of dissimilarity, so that the more useful, valuable, and on the whole beneficial tend to survive.

The answer of mental hygiene would be very much the same. Whatever might be said about innate intelligence or the primitive native endowments of the mind, there is no question about differences when the school age is reached. Here, there is no uniformity of mental receptivity and certainly none concerning the impulse, the liking, and the ability to learn. There must be in any scheme of instruction sufficient elasticity to meet the varying requirements of the individuals forming a group to be taught.

Another thing that should be pointed out is that the principle of selection that is suggested is supported by accumulated experience in dealing with many minds that come into the province of the activity of a mental hygiene movement. There is nothing new in this view, of course, and there is no lack of proof that educators have long ago seen this, and that all kinds of efforts have been set into activity to provide some kind of arrangement through which the quality of difference might be made use of to the advantage of the whole group. The fixed curriculum as contrasted to the elastic scheme is one that appeals to the physiologist and to those that see in the school system the greatest hope that exists today for the mental training of the future citizen in the complex life of a democracy. Mental hygiene has its attention focused on the two groups that stand out in any fixed method of training. The backward and the advanced group each contain the elements of future harm and of future good.

The proper attitude to each of these is a province that mental hygiene might well enter, and by entrance I mean through advice, suggestion, and also by pointing out the dangers in the too rapid progress that might be made by the selected group and the risks to the backward group either by over-exertion or through a growing disinclination to attempt to reach the average level. The solution of this difficult problem would seem to lie in some attempt to distribute the task in such a way that from the outset selection be made according to prospective ability, so that each group might measure up to its full capacity at acquisition and thus fully realize its natural and acquired endowment. All this would imply a careful consideration of individual ability and some approach at measurement of potential intelligence.

A natural question here would be in regard to the means by which this might be accomplished. With the great number of pupils and the small number of teachers how could anything like such a task he put upon them? Under present conditions, it is impossible, but a point of view might easily be brought about through which the teacher becomes increasingly aware of the very real danger to the mental health of the children in applying a too rigid system of instruction. By steadily emphasizing notions of this kind and suggesting that education is the proper training of children for their future contact with the realities of life, a point of view might be finally reached that would insist that even in matters as professional and technical as planning a curriculum there might be a place for the consideration of the factor of mental hygiene.

It is more interesting and certainly less technical to get away from the method of teaching and the stuff to be taught and pay some attention to the object of this activity, that is, the child and some of the problems from the standpoint of the make up of a child which are worth considering. It is well to realize that a good deal of the popular notions about the psychology of the child is based upon misconceptions and rather strange notions derived from a mass of poorly digested observations. A good deal of this misconception, I believe, is due to the view that the brain of an infant represents a mass of innate organized power that is inherited from the parents or from the race to which he belongs or from the stock out of which he has sprung. As a matter of fact, the brain of the infant, certainly in the early months of his existence and up to the time that he can receive notions from the outside world and can give some out himself, is made up of purely instinctive impulses which mainly have to do with primitive needs.

The innate power, that thing that differentiates one brain from another and which causes the tendency to differ to which I have previously referred, lies very likely in certain very material endowments that are quite like the superior power muscularly that one child shows over another. That is, there is laid down, so to speak, in each brain a certain individuality of cell activity, a certain quickness of reaction, a certain capacity to respond to stimuli, and so on. It is out of these and many others that are not known that the future qualities of mental acquisition and the utilization of the things so acquired arise. The future scientist is not born with a brain that is destined to be capable of scientific reasoning any more than the future artist or republican is born with something inherent in his mental make up that will drive him to these callings or that state of mind. The point is that there is a general lot of capacities that all brains might be supposed to possess; that is, such brains that are not injured or the subject of early diseases or definite abnormal inheritance in the way of syphilis or other conditions of that sort. This means that in the early years of a child's life he responds as far as his mental life is concerned to certain habits and is in reality up to the fourth or fifth year largely a mechanism of habits and its handmaid imitation. The instincts with which he comes into the world are capable of being trained into purposive and useful and profitable types of action or conduct, and it depends very much upon the early direction given to them whether they turn out to be advantageous things for both the individual and society or not.

The child enters the region of formal education just as his instinctive life is passing out of the pure habit stage into that in which the responses from the outside world begin to develop in him powers of selection, choice, and discrimination. It is also well to note that the school represents to such a child his first contact with society; that is, social existence outside the restricted limits of home. The habit stage is never, of course, completely done away with, but new habits both bad and good are a little more difficult to acquire with the

passing of the first decennium of a child's life. I mean here habits that are entirely new; and I refer here to mental habits, or possibly I can better express this by saying habits of thinking.

In the years now under consideration there is great power for acquiring things, especially such as are carried in by sound and sight. Memory, retentiveness, attention, concentration, and a host of most valuable items in the process of thinking are acquired and through training, discipline, imitation and inhibition the machinery of thinking is slowly laid down. The instinctive impulses and the purposeless and often destructive tendencies associated with them are arranged in some kind of orderly fashion, so that when the first phase of adolescence is reached and the period of early conflict begins, the child may have ready at hand some means by which this period may be safely passed. The age of conflict, the awakening of self consciousness, and the capacity to see a bit into the problems and not merely to beware of them may be fixed roughly at the period of high school.

I have sketched the various ages of the child merely to be able to point out some of the uses that mental hygiene may be put to, if education is looked at not merely as a process of imparting what is called knowledge to the prospective adult, but as a training and preparation for contacts with the world as it exists, a hard, difficult place to live in, full of destructive things and one where an individual who relies on impulses will find difficulty in adjusting himself.

An important thing for mental hygiene to do is to guide the proper use of effort made by the mind in acquiring the necessary items of an education,—I mean by that how far it is wise to go in overcoming the natural resistance which is almost always present in the mind of the average child when it comes to the performance of definite intellectual tasks. A way must be found somewhere between the actual forcing and the natural impulse, the instinct to learn through which the child in or out of school is impelled on his way to some sort of final mental achievement in whatever form that may eventually take. This brings in naturally the place which discipline should occupy in any system of teaching. There has been a good deal said on this subject lately and much criticism has been directed to the present methods of development and enforcing it.

What is discipline and what purpose does it serve? It can be compared to something that is present in almost all of the things that are done in the physiology of the body. There is no mechanism that prevents a too excessive use either in rate or power. This is seen in the regulation of the beat of the heart and in the limitation on certain of the reflexes. This principle is called inhibition. It is, on the whole, one of the most valuable and necessary of the automatic controls. A certain analogue of this function is found in the mind. Here it is called repression; that is, the power to prevent certain ideas on their expression from becoming articulate or transformed into types of conduct. Discipline makes use of a similar mechanism when it aims to prevent certain acts or impulses from being translated into kinds of conduct that in the long run are disadvantageous to the individual and his social environment. Often the power that makes discipline effectual must come from the outside, and, indeed, in the beginning and as an educational force, it must come in that way because there is nothing in the mind of the child, as such, that has any such inherent power. The effect of school discipline, if wisely enforced, creates a tendency towards a broader understanding of conduct and removes from the mind of the child one of his most dangerous tendencies; that is,—to regard each thing that he does as affecting in its consequences himself alone.

Rôle of Vocational Guidance

There is little doubt that discipline in conduct is the first step to the acquisition of the more valuable trait of mental discipline. This is one of the important features in the successful performance of any kind of task and is necessary in the large activities of any kind of communal life. So valuable an item in the training of a child must contain many mental aspects, and to the mental hygienist the proper use of discipline is of the greatest interest. Some one has pointed out the fact that the first thing to teach a child is to talk and the next thing is to teach him not to talk. This is the nub of the matter and contains the gist of discipline.

Whatever aspect of education is regarded as of importance, certainly that point of view which stresses the training of a child for his future contact with the world touches all of us and takes hold of us with a definite feeling of conviction. What is the child being trained for and what is he to do with the training he has obtained after he gets it? Does education presuppose a selective tendency towards future activity, and does or can its training be aimed at some sort of future activity, business calling, or profession?

Vocational guidance should be a part of education. It is here perhaps more than in any other phase of the educational system that accomplishment is so far behind ideas, hopes, and dreams. Throughout the school life of a child there looms up the future and the future means chiefly a business in life and a selection of the sort of business it shall be. The great majority of the graduates of the secondary or high schools go out into life and take up this or that calling without the least sort of preparation for it. By chance or by force of circumstances a place is found and that place bears no relation at all to the special type of mind or personality the individual may have. To the mental hygienist this sort of crude chance is full of danger and in it he sees all kinds of harmful possibilities.

Many a case of mental breakdown is due to the wrong selection of a trade or business and many an individual sacrifices the best that is in him by steadily plugging along in the wrong game until he becomes after awhile the tired routinist, a very common type of our citizenship. Something to lighten this burden might be done by allowing the mental hygiene point of view to play its small part in the educational system, chiefly through an attempt at early selection and a constant study of the capacities, tastes, and interests of the child as he proceeds on his way through the stages of his education.

In the records kept of pupils in the secondary schools how often is there noted any significant data in regard to what they would seem to be best fitted for, how far a special training would be advised, and how far it ought to go? Certainly a start in this direction might be made, if only to give to education an aspect of practical application which it sometimes appears to lack. Much of this would indeed be experimental in the start and there would be experimental guess work and mistakes would be made, but it might prevent in some instances, where free choice is possible placing, the youth or girl in the kind of work he or she is obviously unfitted for. I am trying to keep in mind, of course, the difficulty of getting jobs in any case and the necessity often present to take what there is, but I am sure

that there will come a time when there will be some other factor in choosing a trade except that of dire need and immediate necessity.

Before closing I want to quote a few sentences from a distinguished neurologist who has written wisely and entertainingly on education. The essentials of education Stewart Patton says are (1) knowledge of actual life; (2) definite impelling interest in some phase of life; (3) information gained from actual experience of a person's own adjusting capacity and limitations; (4) the cultivation of the emotional attitudes and habits required for recognizing and facing reality. People who have acquired these things are insured against nervous breakdowns, do not occupy positions they are not qualified to fill, are not intoxicated by intemperated idealism, do not develop a psychology of life based upon personal grouches or make the fatal mistake of persuading themselves that their own pronounced defense reactions against reality are virtues. It is my own firm conviction that a properly educated community would be one in which the percentage of insanity and nervous disease would be very small. Education in this sense is possibly the most important means of prevention, ready at hand against the burden of nervous and mental diseases that so frightfully weigh down the community of today. Mental hygiene in its relation to education furnishes the channel through which the necessary information and experience might permeate the educational system and reach the desired end. Education then might well be regarded as the most important of our social businesses. It is the most vital element in the problem which life presents and without it life is an almost impossible task to get through with. It is a matter in which the wisest and most thoughtful minds of a community should be concerned. It is one of the institutions in the life of a democracy which should have no political tinge and no political aspect. It is a thing so necessary, so vital, and so much a part in the lives of each one of us, that no selfish, inexpert, narrow, dull or partisan individual should be permitted even to touch it.

Birmingham Provides Pools for Its Workers

THAT cities and industries are realizing the workers' need for wholesome recreation is again evidenced by the combined undertaking of the city of Birmingham, Ala., and the Tennessee Iron and Coal Company in completing last summer two swimming pools. These, located within the city limits, are within convenient walking distance of the industrial section. Of the total cost of erection $45,000, the company furnished $25,000, the city paying the remainder. The pools measure 50x 100 feet each and are 3½ feet deep at the shallow end and 9 feet deep at the other. They are separated by a 12-foot concrete walk.

Helen Bethea describes the city-industry owned pools in the April *American City* thus:

The pools are not covered but buildings practically surround them. At one end is the filtration plant and at the other the gallery for spectators. On both sides are the bath-houses, administration building, and lockers. Access to the pools can be had only through doors and passages.

Each pool which has a capacity of approximately 250,000 gallons, is filled with filtered water from the city supply which is pumped from the lowest point in each pool by a centrifugal pump and forced through pressure filters and thence to the ultra violet ray sterilizers from which it is returned to the pool. The piping is so arranged that the water is returned to the pool through four orifices located at the shallow end of each pool near the floor. By this means almost perfect circulation is maintained as is demonstrated by the fact that bathing caps, belts, and other articles lost in any part of the pool always drift rapidly to the grating over the suction pipe to the pump.

To insure a fresh supply, the water in both pools is turned over every twenty-four hours, and although the attendance is from 300 to 2,000 a day, bacteriological tests have shown the water to be satisfactory at all times. The pools are emptied and scrubbed each week to destroy the algae which grow along the sides because of the uncovered condition making the water appear dark. After the scrubbing, the pools are sprinkled with chlorid of lime. The addition of bluestone will retard the growth of moss.

Two pools were built last summer and financed jointly by the city of Birmingham, Ala., and the Tennessee Iron and Coal Company. The pools measure 50x100 feet and have a capacity of 250,000 gallons each. The water is pumped through pressure filters and thence to ultra violet ray sterilizers, thus assuring a fresh, pure water supply at all times.

The Veterans' Mountain Camp

By CHARLES POPE CALDWELL, Chairman, Veterans' Mountain Camp Committee, New York City.

THE Veterans' Mountain Camp, located on Big Tupper Lake, New York, has been established by the New York Department of the American Legion as a convalescent camp for discharged veterans to supplement the hospitalization facilities of Government and private institutions.

In the beginning preference will be given to legionnaires from the state of New York, but as the Camp develops and its facilities become larger patients will be received from other states. There is no free convalescent home that we know of. The Government is not expected to give hospitalization to the veteran who cannot trace his disability to injuries in line of duty. No such limitation will be imposed in the Veterans' Camp, however, and tuberculosis developed after the time specified in the Sweet Bill will be treated by us free. The Legion feels that all who have borne or may bear arms in the defense of the country are entitled to aid, comfort, and support when in distress, and we propose to treat all alike, rich or poor, young or old, male or female.

The Camp has been incorporated under the laws of the State of New York and every member of the American Legion in the Department of New York will be a member of the Corporation. The Board of Directors consists of forty-five men, including the Executive Committee, American Legion, Department of New York.

Twelve hundred and seventy-five acres of land have been purchased on the south end of Big Tupper Lake, surrounded on three sides by twelve thousand acres of State Forest Preserve. The altitude is from sixteen hundred to twenty-three hundred feet. On the property already are twenty or more buildings, one of which is being used as an infirmary and the others for purposes essential to the Camp. A number of open log lean-to's for the housing of the outdoor patients have been built.

Beginning with $1.00 a little over $150,000 in actual cash has been raised and pledges bring our total up to approximately one quarter of a million dollars. Our property cost us $85,000.00 and it has been appraised by Brown Wheelock & Co., Inc., New York City, real estate appraisers having a replacement value of $300,000.00. Besides the three main buildings and numerous out-houses we have a group of farm buildings, with a dairy, pig sty, chicken farm, etc., recreation hall with bowling alleys, tennis court, water works and all the accessories of a millionaire's beautiful home in the mountains.

We are now raising our endowment fund in order that the Camp may be maintained and operated for all time. It will belong to the veterans of the Armed Forces of the United States, the endowment will be theirs, the income theirs. While it will be under control and for the benefit of those who need the care such as the Camp can give, no one who is a denizen of the camp will feel that he is accepting charity, any more than a son would feel in accepting a check from the Trust Company, acting under a Trust Fund created by his deceased father.

Operation of the Camp was begun on a one hundred bed basis. As the average stay of the convalescent is about three weeks, we expect, therefore, to take care of approximately seventeen hundred the first year. In time we intend our Camp to develop into a sanitarium and then into an old veterans' home. It will be open to men and women. An honorable discharge from the Armed Forces of the United States, showing service in time of war and need for the care and treatment such as we can give

One of the twenty buildings already on the grounds of the Veterans' Mountain Camp which is used as a bowling alley and recreation hall

will be a ticket of admission. Transportation to and from the Camp, food, clothing, lodging, medical care and treatment, together with such recreation and entertainment as will be advisable will all be free. A millionaire may come to the Camp, but he cannot pay for its service. He may donate, but he cannot buy. All will be treated alike.

There are no overhead charges, no salaried officials, and no charge for office space. Our expenses, including apprisal, inspection, examination of title, etc., have been considerably less than 10 per cent of actual cash received, and the bargains struck in the purchase of property have been so advantageous that we can safely say that for each one dollar contributed to the Veterans Mountain Camp one hundred cents goes to the sick man.

A medical staff is in process of organization and we hope to have the largest and most efficient medical supervision of any hospital in the country.

Block Traffic to Give Children Play Space

Underwood & Underwood.

In an effort to give tenement children a safe place to play, Mayor Hylan has ordered certain New York City streets closed during the summer months. The Merry-go-Round is a popular amusement on these play-streets and on hot days the fireman's hose furnishes cold showers to the hundreds of swarming children.

Swimming Pool Tests

WHEN it is realized that communicable diseases, particularly infections of the eye, ear, nose, and throat, are easily spread in swimming pools, the necessity for adequate sanitary tests becomes apparent. That the usual methods are not sufficient to check such contagion is the belief of J. W. Robinson, M.D., Deputy Health Officer, Los Angeles County, California who in the *California State Journal of Medicine* sets forth an efficient disease-preventing program.

"The usual methods of testing water fail to show the danger caused by mucous or pus which are separated from the swimmer by direct washing, coughing, sneezing, or expectorating, and this leads to false security," states Dr. Robinson. "Many of the colds caught are actually swimming pool infections."

The rules of the California State Board of Health have recognized the dangers of such infection and Rule 3 states that facilities for adequately protecting the pool waters against unnecessary sputum contamination by bathers must be provided. For this purpose convenient and proper places for expectoration should be provided as well as means for frequently or continuously skimming off the surface water. A combined overflow and expectoration gutter is usually the best method of handling the difficulty. Rule 4 states that all persons known or suspected of being afflicted with infectious diseases shall be excluded from the pool.

While these rules are considered by Dr. Robinson as steps in the right direction, nevertheless he feels they are not specific enough and makes the following recommendations:

(1) In order to prevent stagnation of waters in corners except what is overcome by the movement of bathers, the location of supply and drainage pipes should be specifically stated by boards of health or of engineering.

(2) In addition to rules concerning clearness and bacterial counts, there should be a rule stating the frequency with which water should be changed on a basis of a certain number of cubic feet to each bather or in ratio of the surface area for each bather. There should be a constant flow of water from the surface into the overflow gutters, and this water should be supplied by as many intake pipes and removed by as many overflow pipes as is necessary to keep all parts of the surface of the water changed. To accomplish this satisfactorily, the flow of water should be across and not lengthwise of the pool in order that mucous floating on the surface would be there the minimum amount of time.

(3) Methods should be worked out of skimming the surface of the water to examine for pus or other infectious material.

(4) A law should be enacted making it a misdemeanor for an infected person to enter a swimming pool.

Unique Recreation Plan

A City Recreation Committee has been formed in New York City to work toward the adoption of a comprehensive recreation plan for the city and has drawn up a definite set of immediate tasks which are published in *Better Times*. The following committees have been appointed: Recreation budget, Raymond Ingersoll, chairman; construction of new school buildings, Clarence A. Perry, chairman; community recreation programs, Charles C. Bauer, chairman; public bathing facilities, Mrs. Mary G. Simkhovitch, chairman; summer camps and bathing beaches, Mrs. Sidney C. Borg, chairman; commercial recreation, Mrs. Henry Moskowitz, chairman. Mrs. Frank A. Vanderlip has been elected chairman of the City Recreation Committee.

The fourth annual meeting of the Montana Public Health Association was held at Great Falls, July 10 and 11, 1922.

Biological Tests in Nutrition

NOT very great success and very little precise understanding with regard to dietary deficiencies were achieved in the early investigatino of rationing on the basis of energy requirements. As chemistry progressed and became able to reveal some of the secret processes of metabolism newer conceptions of the adequacy of diets, the underlying causes of deficiencies, were worked out by checking the findings of the laboratory against biological experiment. A century of patient labor has gone into the work of analyzing foodstuffs, searching out the number and character of the processes of metabolism, and observing the effects of simplified diets by animal experimentation.

It was long after nutritional experiment was concerned with working out adequate diets before the students of nutrition discovered the parallel between public health conditions and the dietaries of the people. Man has been ingenious enough to work out for himself sufficiently varied diets to maintain under ordinary conditions the necessary balance. Conditions like scurvy, neuritis, pellagra, and other deficiency diseases were in times of famine or in post-war periods ascribed to general stress rather than to dietary errors.

The newer nutritional conceptions are far reaching in significance. People generally are beginning to appreciate that the chemical analysis of foods supplies for protein, carbohydrate, fat, and mineral salts does not reveal their biological properties, but that the nutritive requirements of the body include the vitamines A, B, and C., and the more recently announced Vitamine D discovered by McCollum in his studies of the disturbed metabolism of calcium and phosphorus in rickets.

The vitamine concept, however, should not cloud the issue of a perfect food supply. There are many grades of malnutrition between the condition of well being on the one hand and deficiency diseases on the other, and there is the need of popularizing the newer knowledge of nutrition. McCollum, particularly, is insistent upon the newer classification on the basis of biological properties as foods. Those "which are faulty in certain respects are classed together, irrespective of their chemical composition. Thus the bean with 23 per cent of protein is logically classified with the potato which has but 2 per cent because bean proteins are of very poor quality and are of little use for the promotion of growth or for the repair of tissue waste," this classification being the outcome of the discovery that all vegetables foods which have the function of storage organs (seeds, tubers, fleshy roots) have similar dietary properties and similar deficiencies regardless of their chemical composition as revealed by the standard food analysis. The highly specialized muscle tissue falls into the same class with the cereals in respect to its dietary properties and differs very markedly from the glandular organs just as do the seeds, tubers, and fleshy roots from the vegetative parts of the plants—the leaves. Milk and the thin leaves of plants are of special value for enhancing the dietary properties of nearly all other foods, and they are therefore of particular interest and importance. McCollum for this reason terms them "protective foods." In a lesser degree, eggs and the glandular organs of animals serve this purpose of improving the quality of cereals, tubers, fruits, roots, and of meats of the muscle type.

McCollum holds that the science of nutrition is of the greatest value in preventive medicine. However, he advises particularly against food fads. The unfortunate individual who through faulty habits of living, finds at an age at which he should still be in possession of the full vigor of middle life, that his efficiency is diminishing and the joy of life slipping away will, he says, gain much more through adhering to a diet well balanced than through clutching to this or that dietary whim or fad.

The Engineer's Standpoint

INFLUENZA from the viewpoint of the physician has been a common topic for articles in medical journals for the past few years. The subject is now being taken up by engineering journals, and in the April and May issues of *Municipal and County Engineering* Dr. William Paul Gerhard, C.E., Consulting Engineer, traces the history of the disease and the police and sanitary regulations helpful in preventing it.

Influenza is not a new or mysterious disease, but, according to Dr. A. Ripperger of Munich, was first known in 1387. It reoccurred in epidemics four times in the fourteenth century, twice in the fifteenth, four times in the sixteenth, six times in the seventeenth, and seven times in the eighteenth century. The disease in Italy was called "influenza" owing to the belief that certain evil currents flowed from the stars to the earth. In France it was termed "La Grippe," and Germany "Russian catarrh."

The astounding spread of the disease is shown by statistics of new cases in New York City in 1918. Beginning with 127 cases in the week ending September 22 and no cases of pneumonia, the number jumped by thousands each week till in the week ending October 27, 1918 there were 26,166 cases of influenza and 12,369 cases of pneumonia, with 2,497 deaths of the former in the same week and 6,032 deaths from the latter.

Although the disease is an old one and well known to the medical profession its control has not always been successful. The fact that the period of incubation is shorter than in other infectious diseases, that the disease is infectious before the true nature of the illness is diagnosed, and that patients with mild cases continue to walk about has made the disease difficult to control.

That the municipality can by police and sanitary regulations do much to offset the spread of influenza is the belief of Dr. Gerhard. Some of the regulations considered valuable are the anti-spitting ordinance; placards regarding the use of handkerchief; use of suitable substitutes for handkerchief; prohibition of common drinking cups and roller towels; no permission granted to visitors to sick in hospitals; placarding of houses; no public funerals; avoidance of handshaking; limiting hours of work; staggering hours of work to avoid congestion of traffic; cleaning and disinfecting public conveyances; limiting size of public gatherings; closing of schools in some communities.

Sprinkling of streets with a disinfecting solution to lay the dust should be another sanitary precaution of a municipality during an epidemic.

Street gutters and catch basins at street intersections should be carefully examined at frequent intervals, swept, flushed and kept scrupulously clean by the force of the city engineering department.

Digest of Sanitary and Hygienic Advance

THE health officer will find in this department each month a more or less technical report of the newer methods and significant trends in the public health field.

Prevention of Simple Goiter

Kimball (*Am. Jr. Med. Sc., May-22, C LXIII, 5, p. 634 et seq.*) after a careful review of the history and world distribution of simple goiter, i.e., thyroid hypertrophy, concludes that this condition is to a large degree preventable. This is an opinion which should receive careful consideration by all hygienists. His data on the incidence of goiter in the United States indicate that this disease is widespread and in certain areas, like the Great Lakes basin, is endemic and constitutes a public health problem of considerable magnitude. On the supposition that goiter is a deficiency disease which may be prevented by the administration of iodin, in April, 1917, he examined 3,872 girl pupils in the public schools of Akron, Ohio, with the following results:

Normal thyroids	1,688	43.6%
Slightly enlarged thyroids	1,931	49.9%
Moderately enlarged thyroids	246	6.3%
Markedly enlarged thyroids	7	0.2%

Of this group one thousand girls voluntarily took the prophylactic treatment of sodium iodid. In November, 1917, 4,415 girls were examined of whom 2,643 were in the group examined in the preceding April. Of these 764 had taken the prophylactic. There was no increase in the normal thyroids of any child who had taken iodin, indeed one-third of the small goiters had disappeared and one-third of the moderately enlarged thyroids had decreased in size by 2 cm. or more. After considering these and many other data, Kimball concludes that iodin is an efficient prophylactic against simple goiter. While any method which will increase iodin absorption may be used, *e.g.*, by leaving an unstoppered bottle of tincture of iodin in the schoolroom, he believes that 2 grams of sodium iodid administered twice yearly is a harmless and efficient means of prophylaxis.

The occurrence of familial tuberculosis is in the inverse ratio to the family income.

The Schick Reaction

Vincent, Pilov, and Zoeller before the March 11, 1922 meeting of the Biological Society (*Par. Med. XII. No. 12, Mar. 25, 1922, p. 260*) reported that they had stated to the Congress of Strasburg (1921) the first results given by the intradermic reaction to diphthero-toxin upon 2,816 men during an epidemic of diphtheria. Strong or faint, the positive reaction implies a receptivity for the bacillus of diphtheria. But this receptivity differs according to the intensity of the reaction; thus out of 728 men having a strong reaction there were twenty-four cases of diphtheria or 32.9 per thousand while out of 616 with faint reactions there were 12 or 19.4 per thousand and out of 1,472 having a negative reaction, four or 2.71 per thousand had diphtheria and of mild benign type only.

Trichuriasis

Spruit, (*Am. Jr. of Trop. Med., 1, 6, p. 375 et seq.*) points out the interesting fact that *Trichuris trichiura* is not, as has been commonly supposed, a harmless inhabitant of the cecum but may produce serious symptoms, or even death. In support of this, he describes the pathological changes found at necropsy. He also notes the extreme pessimism of medical literature regarding the specific treatment of this condition and reports the failure of Chenopodium to remove the parasite. These facts are very important, since everyone who examines stools in the tropics is struck by the almost never failing presence of the *Trichocephalus* therein. In Colombia and Brazil, the fresh juice of the white fig tree (*Ficus glaborata, F. latex, F. laurifolia*) is quite generally used as a vermifuge and is considered as a specific for trichocephaliasis. Spruit used the juice or sap, which is known in Colombia as "Leche de higueron," both fresh and preserved in chloroform. It is obtained from slashes in the bark of the tree or by cutting off a branch and collecting the juice ("lech") which flows abundantly. According to Montoya (*Rep. de Med. y Cirg. XI, 8, p. 432 et seq.*) this is a yellowish-white, syrupy liquid resembling cow's milk. When fresh, it is an acid emulsion of rubber and resins, albumin and an ammoniacal substance fermenting easily with the evolution of carbon dioxid and an increase in acidity. Montoya believes that the active agent (as yet not isolated) exists in this ammoniacal substance and outlines a table of dosage varying from 15 grams at one year of age to 45 grams for adults. Spruit puts the patient on liquid diet the day preceding the treatment; at 8 p. m., 30 c.c. cream of tartar in a glass of sweetened water is administered; at 6 a. m. and 8 a. m. the following day, 16 c.c. of fresh *leche de higueron* in half a glass of cow's milk; at 10 a. m., 60 c.c. castor oil. With the chloroformed juice, the dose was increased from 16 c.c. to 20 or 30 c.c. and magnesium sulphate was used instead of castor oil. Montoya follows practically the same routine but gives the leche in a single dose, He believes that ordinarily leche de higuerno is non-toxic but reports that there are occasionally alarming symptoms such as cramps, delirium, sudden urticaria, syncope, vertigo, convulsions, rectal and vesical tenesmus, partial suppression of urine, etc., which disappear completely in a few hours. Spruit reports that in his series of cases there were usually no subjectve symptoms when the pure juice was used, occasionally burning in the rectum and around the anus was complained of but ceased in a few hours. *Ficus latex* is widely distributed in the tropics and the use of its juice for the expulsion of *Trichuris* seems to be a practical and easy method of treatment.

Certify the Stillborn

The Chinese ante-date the age of a child nine months, a logical decision in more ways than one. When we consider that 47 per cent of the deaths in the first year of life, as reckoned by our Occidental methods, occur within two weeks after birth, it would appear that much good might be attained by adopting the Chinese method of age calculation, since under that system, we would be more apt to direct our attention to the untoward eventualities of intra-uterine life. It probably would be difficult to get Americans to thinking of a child which dies seven days after delivery as being 287 days old but it certainly would wake people up to the tremendous waste of young lives which is now going on. Another aid to this end would be the abolition of the term stillborn and

the attendant negligence which its use begets. As at present used, still-born is a blanket-term which hides much carelessness and cloaks much ignorance. Its abolition and the requirement of a death certificate for every human death will disclose to us much maternal toxemia and specific disease, as well as many deformities and traumas of which we now have little accurate knowledge. Surely a child which is born alive and then dies is no deader than one which dies before separating from its mother, and surely, if we are going seriously about the business of conserving human life, the knowledge of the cause of death is equally important in both cases. The Church and the Law have long recognized a child conceived as a living entity and the profession of sanitary medicine should take the same stand. Society should demand that earnest inquiry be made into the mechanism by which any child is killed and a properly executed death certificate is the beginning of the search for this information. Doubtless it would result in a tremendous increase in the death-roll which is now laid at the feet of syphilis, but so much the better, since it would demonstrate the necessity for ceaselessly combatting this arch enemy of the human race.

Regular, periodic, physical examinations at present constitute the most immediately available weapon against heart disease.

For Rodent Destruction

Mix thoroughly one pound of barium carbonate with three pounds of flour in a clean enameled basin. Stir in enough water to make a fairly firm paste. This will make 2,300 baits of three grains each of barium carbonate. It is necessary to make fresh baits daily since hard stale bait is rarely taken by rats. The baits should be distributed in groups of four in situations which are frequented by rats. A careful record should be kept of the number and location of the baits distributed and a note made of the number taken. The poisoning of rats is greatly facilitated by rendering food stuffs of all sorts inaccessible to them.

Alastrim

The December number of *Sanidad y Beneficencia*, Habana, Cuba, reprints in full a Spanish translation of Rucker's concise description of alastrim which appeared originally in the Public Health Reports of December 9, 1921. There can be little doubt that alastrim is merely an aberrant form of smallpox and it is regrettable that the word alastrim has crept into medical nomenclature, since it is misleading to the lay public which is always anxious to call smallpox. From the public health point of view any kind of smallpox is a health hazard and an economic menace, no matter whether it is called Kaffir-pox, Cuban itch or amaas and regardless of its apparent mildness. To paraphrase an overworked quotation, "Smallpox by any other name will pit as deep." The community which is well vaccinated is immune to smallpox in all its forms. On the other hand, the community which is carelessly vaccinated is unprotected and sooner or later will be visited by smallpox.

It takes an acre of ground to bury a thousand persons. What right have dead people to occupy ground which might be producing food for the living? After all isn't cremation the sanitary way of disposing of all the dead products of the community?

Factors in the Silk Industry

The Industrial Fatigue Board of Great Britain has recently published the results of its studies of the differences existing between the outputs of various individual operatives. The rate of production was found to vary from 62 "picks" per minute, representing an efficiency of about 43 per cent, to 130 "picks" per minute or an efficiency of 90 per cent. At these rates it took one operative 318 hours to weave a warp while another required 146 hours. The employer must meet the problem of preventing the losses which occur in this way, for while the one worker receives less than half the hourly return from labor of the other, the overhead expenses run on at an undiminished rate. In order that the optimum output of the factory may be assured, it is necessary that weavers select their men more carefully and train them more efficiently. The observations quoted have shown that the essential qualities of a good silk weaver are: good eyesight, powers of observation, bi-manual dexterity, a delicate sense of touch, and an ability to stand for long periods. About two years are required to train a weaver to weave quickly and well and the report urges that in all establishments except the very small, schools for the proper training of weavers be put in operation.

To Find Trichosephalus

Baer in a letter to the *Lancet* (Vol. CCII, 5150, May 13-22, p. 968) recommends that the feces to be examined be placed in a back enamel dish, such as is used in photography and mixed with a little water. On stirring gently to disintegrate the feces the white thread-like convolutions may be easily discovered. For finding the eggs, add a few ccm of a 20 per cent solution of hydrochloric acid to a small quantity of feces, shake well, add a little ether and centrifuge. The eggs will be deposited.

Eleven per cent of all permanent industrial accidents involve the eye, according to Wallace of the Eye Sight Conservation Council of America, and approximately twenty-five million workers in the United States have defective vision which requires correction.

What is needed in the prevention of disease is more fresh and less hot air.

Tuberculosis Contacts

Anyone who has taken many tuberculosis histories has been struck with the frequency with which the patient has a tuberculous parent, brother, or sister. Sometimes this is lacking, but not infrequently a history of some older tuberculous person in the family during the childhood of the patient is obtainable. In taking tuberculosis histories it is important that the presence of other cases in the family be determined and it is equally, or even more, important that the exposure of young children to an open case be determined. In any case, these facts should be reported to the health officer and he should follow up and study these contacts in their environment. Many times, it will be possible to remove young children from exposure to the disease and always it will be possible to undertake the education of the family as to the communicable nature of tuberculosis. This is an important and very necessary field for the public health nurse.

The annual death rate per 1,000 in nine cities having a population of over a million, for approximately the same periods in early 1922 was New York 14.8, Paris 14.9, Chicago 15.7, Hamburg 16.6, London 17.5, Berlin 18.3, Rio de Janeiro 22.2, Vienna, 24.6, Bombay 32.8.

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The Swing of the Pendulum in Health Education

THE teaching of physiology and hygiene in the public schools, began half a century or more ago, in large measure as a result of laws enacted on behalf of "temperance physiology." The instruction given was in most cases limited to routine anatomical detail, and was probably as unproductive as any type of teaching that was ever undertaken. It is natural, therefore, that the remarkable development in health education which has taken place during the last five years, largely as a result of the stimulation of the Child Health Organization, should have involved a violent reaction against the old-fashioned formal instruction in physiology. The keynote of the present day is habit formation, and an extraordinarily promising technic has been developed for appealing to the imagination and enlisting the interest of the child in the improvement of its own physical condition. There is real danger, however, that the pendulum may swing too far; as Professor Wilbur, of Stanford University has said, the teacher who is to do really effective work must think biologically and cause her pupils to think biologically, and not merely "put over rules." It is desirable to form health habits which will be useful at the moment, but it is also important to give the child a sound knowledge of the principles of physiology and hygiene so that in the future it can modify its habits intelligently as the need may arise. These subjects were discussed in detail during the last week of June at a conference on health education called by the Child Health Organization and the United States Department of Education, at Lake Mohonk, and during the first week of July by the Child Hygiene Section of the National Education Association in Boston. It is indeed well to emphasize the acquisition of health habits as the primary objective of health education; it is well to develop all the resources of correlation and extra-curricular inspirational technic, but it is important also to provide for sound systematic class room instruction in the fundamental biological principles upon which healthy living must be based.

In the words of the excellent report of the committee on a School Health Program of the American Public Health Association, "The goals of health instruction are to establish health habits, to give the child the practical knowledge in the principles of healthful living, to develop health ideals, to assume a sense of individual responsibility for the health of the community, and community responsibility for the health of the individual." If these ideals can be realized as a whole the health officer of the future will have a real foundation upon which to build.

Dietetics and World History

HE WHO would write the story of the influence of the human stomach upon the history of the world would indeed produce a work no less interesting than valuable. The tree-man, migrating with the seasons in search of food; the cave dweller descending upon a more advanced agricultural race to raid its crops and perhaps returning with women to infuse a new blood for the improvement of the racial stock; the explorations for new food stuffs, and the rise of a crude chemistry from the experiments made with strange fruits and vegetables; all of these would be included in such a history.

The discovery and exploration of the new world, largely grew out of the insatiable demand of the stomach of western Europe for a stimulant which would assist it to wrestle with the rough food of that period, and thus the craving for pepper hastened the finding and occupation of the Americas far more than the lust for gold. It was the high price of bread which precipitated the French Revolution while in America a tax on tea played an important part in the foundation of the republic. It was the starving of the reconcentrados which precipitated the war with Spain far more than the sinking of the Maine, and who can doubt that hunger, either actual or prospective,

was a far greater influence in the World War than the assassin's bullet at Serajevo?

Historians tell us that a kingly indigestion has on more than one occasion altered the destinies of nations; certainly the hunger of the Carthaginians which betrayed them to their final doom completely altered subsequent events in the Mediterranean basin. It is not difficult to imagine that a long continued diet of cabbage is the father of Sovietism or that gout has on numerous occasions produced profound effects on the "Island Empress of the Sea." Beriberi and pellagra have been the undoing of whole communities, and many historians believe that had it not been for a defective commissary and resultant outbreaks of scurvy and food poisonings, Canada would now be a part of the United States.

Since diet plays such an important rôle in the drama of human events it is highly evident that it is a factor of primary importance in the battle for the public health. This is becoming more generally realized and we are paying more attention to this vital subject than formerly. Many of our public schools now include training in cooking and a knowledge of food values as a part of the regular curriculum, while in the colleges and universities, such courses are increasingly well attended. From an industrial point of view, this is most important. The underfed, improperly nourished workman cannot adequately produce, any more than the soldier can fight long when hungry. Many of the labor troubles in lumber camps have been traced to a long continued diet of beans and who can doubt that the supreme heroism of the French so wonderfully displayed during the World War cannot, in part, at least be credited to the excellence of French cookery.

It is not enough that sanitarians shall control the epidemic infections. They must maintain their clientele in health. The practical application of the principles of dietetics on a wholesale scale is a most important factor to this end.

Prison Reform and Industrial Medicine

A SHORT time ago, a distant community was shocked by the discovery of a subnormal boy loaded with chains and kept in a dark corner by a sadistic teacher on account of an infraction of some of the school rules. Indignation ran high, the victim was freed, photographed, fed, clothed and transformed into a popular hero, while the schoolmaster was arrested, tried and imprisoned by a populace which in the incident unconsciously beheld itself in microcosm.

About the same time, a notorious young housebreaker, a deviate kleptomaniac, escaped from a penitentiary where he was serving a fifty year sentence, robbed a house of a few valueless articles and on failing to halt at the command of a policeman, was shot and killed. The same community which was horror-stricken at the punishment meted out to a recalcitrant schoolboy, almost purred with satisfaction at the killing. If this same robber had been killed after escaping from a psychiatric hospital, where he really should have been, the act would have been viewed with repugnance, but since the prison is a place of penance, not of treatment, it was regarded as a highly laudable means of ridding society of a burden.

The parallelism in these cases lies in this. The schoolmaster was too ignorant, too brutal, and too lazy to grapple adequately with the problem of molding a defective mentality to an arbitrary standard. Similarly, society contents itself with creating and enforcing laws which relentlessly and impersonally prescribe the term of imprisonment for each crime on the category. In both cases, there was no thought of personality, treatment, or cure—no attempt to create physical, mental, or moral health. We house, feed, clothe, exercise, and moralize our social patients but for the most part we attempt only feebly at cure.

The business of treating sick bodies is a highly technical one in which no person may engage without demonstrating his fitness therefor; the mission to ailing souls may not be undertaken without adequate preparation; the straightening of strabismic minds is a work in which only the well trained may indulge; yet in many states, the only prerequisite to prison administration, a tremendously complex operation requiring an intelligent appreciation of all three specialties, is a master's degree from the school of political experience. Hence many wardens with the best intentions in the world, fail utterly to comprehend the larger potentialities of the prison as an instrumentality of cure and training.

Gradually society is beginning to demand higher qualifications of those to whom the care and treatment of its aberrants are committed and several states, notably Massachusetts and California, have made noteworthy reforms in the direction of the application of occupational therapy as a means of curing the social deviate. Little by little a body of men who have been specially trained for this work is being created and these men are blazing a trail through a forest of social cruelty and ignorance which will lead to better things. Patient research and experiment, careful study of the conditions under the work must be performed, painstaking investigation of the individual pris-

oner to determine the great underlying cause of his condition, these are a few of the endeavors which this group of workers has undertaken.

The problem is largely one of social medicine on a huge scale. It is as wide as humanity itself and it has its roots in the most remote portion of man's history. The classification of those who break the laws of society as individuals, not as a mass of perverse, deviate and subnormal minds. The application of the principles of industrial hygiene to the cure of the socially biased, all of these are but the manifestations of the way that industrial hygiene is creeping into the problem.

So far as the sanitary and medical phases of prison administration are concerned, the problem has been pretty well met in the sense that cleanliness, ventilation, safe water and the proper treatment of intercurrent diseases and injuries have all been insisted upon, but for the prison physician himself relatively little has been specifically done by the rest of the profession of medicine. There does not seem at first glance to be any particular niche in the various technical medical societies for him. Why not create a place in industrial medicine where his wealth of valuable experience will add to our learning and be a great inspiration?

Health and the Physical Plant

IN VIEW of the implications bound up in the sanitary administration of the individual household it is hard to explain why cleanliness is usually regarded as a matter of ethics instead of a habit of living fundamental to health. Full value must be given to the fact that individual standards of cleanliness are not ingrained, but are the casual product of environment and circumstance to account for the necessity of somehow inducing the individual to clean up his own door yard before he can be counted upon to support a wider application of sanitary practice in municipal housekeeping. Social workers, who continually find health questions inextricably bound up with conditions in the home, often secure their best corrective measures through the administrations of a visiting housekeeper, and the greatest tax upon their ingenuity is encountered in the effort to institute a régime of cleanliness where the conditions of the "home plant" are archaic and unfavorable or where crowding makes decent living difficult.

We all know that if the world is to lend itself to reform, it must be made to see its duty in ways that are pleasant; but is thoroughgoing sanitation to be practicable only in the spacious home on the one hand, or the multi-family house on the other? In organizing a technical service to the small home builder recently the American Institute of Architects admitted their collective responsibility for the fact that less than 3 per cent of the small homes in the country are properly planned or adequately supervised from a structural standpoint, not to mention such engineering problems as the place of the small house in city planning; light and air in the home; cleanliness in the home, involving protection against dust and smoke, water supply, waste removal, etc.; construction to avoid dampness, or to protect against vermin, or to eliminate such "conveniences" as the insanitary garbage chute.

Much has been said about the unappreciated bath tubs in tenement districts, but one hears nothing of the discouraging effort of a housewife to mitigate the evils of wrong or insufficient installations of one kind or another, or of the impossibility in health work of countering the deleterious effects of defective drains. Municipal sanitation is a major issue; industrial hygiene has its place; but no question can be considered more vital than the rational equipment and organization of the small home for easy and efficient sanitation.

A SCHEME of maternal welfare is outlined in the report of the Joint Committee on Maternal Welfare of the American Gynecological Society and the American Association for Child Hygiene. Five main lines of inquiry were pursued by the Committee: (1) The elaboration of a complete scheme of maternal welfare, emphasizing the idea of educating the public to the necessity of this work; (2) the relationship of this work to other health and welfare activities such as infant and child welfare, the venereal disease campaigns, board of health, social agencies, and certain eugenic problems; (3) representative conference with governmental agencies on the larger aspects of the question; (4) the development in cooperation with pediatrists of child welfare work on the basis of maternal protection.

The problem of maternal welfare is a public health problem and cannot be considered apart from its public health aspect. It is, however, definitely a matter for expert study and becomes properly the concern of gynecologists and of pediatricians. Approached in this way, fuller reports will serve the public health officer, and more scientific study will serve both medicine and eugenics. No one can regard the situation in this particular field with any complacency and its extensive study in its various relationships to other phases of preventive and curative medicine is a much needed contribution.

HEALTH IN INDUSTRY

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Sickness Records in Preventive Work*

Prevention, of Course, Presupposes an Exhaustive Study of the Conditions to Be Prevented

BY EDGAR SYDENSTRICKER, STATISTICIAN, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

IN INTRODUCING the subject of the use of morbidity records in the prevention of disease I can do no better than reiterate, with as much emphasis as possible, this broad principle: *That intelligent health administration in the industrial plant, as in the community, of necessity rests upon a knowledge of what ill health exists and of the conditions under which it occurs.*

There will be no dissent, I take it, from that principle of common sense, but there undoubtedly is a failure on the part of health administrators to appreciate the value of accurate and complete knowledge of the incidence of ill health in its various manifestations. They are too apt to rely on unsystematic, irregular, and incomplete observation. More than one medical director who has efficient systems of entrance physical examination, emergency relief, and hospitalization, has rejected the idea of sickness records with the remark that any case of illness quickly comes to the attention of himself and his staff and that records are unnecessary.

Now if the industrial medical director is to be a health administrator in the preventive, in the real sense of the term, and not merely an emergency surgeon or rest room doctor, there is no easy escape from the necessity for an adequate equipment of morbidity facts. No degree of proficiency in the practice of medicine, no amount of erudition in the many subjects allied in the prevention of disease, or of expertness in the management of relief stations and hospitals, or of sympathetic care of the group or of devotion to individual cases, can avail fully unless he has also the means of knowing, and does know, what ill health exists and the specific conditions under which it occurs. He must, in fact, be an epidemiologist, in the broad meaning of the term. And since the conditions he must deal with are intertwined in a maze of interrelations, and because he must account to a keen appraisal of his results, he is called upon to be an epidemiologist of a different sort from the most of us who are trying to do something in that field, and, I am impelled to believe, he must be one of a higher order.

If preventive work in industry is to become effective, the industrial physician must be a first rate epidemiologist, and if he is an epidemiologist at all, he must establish an adequate system of morbidity statistics. The more complete the reports of illness, the more specific the service it is possible to render.

No degree of proficiency in the practice of his art; no amount of erudition in theoretical medicine; no boasted expertness in management of clinic or hospital will serve the physician in prevention without continuous concise knowledge of the ill health that exists in the plant, and the specific conditions under which it occurs.

While the industrial medical director is a sanitarian in just as true a sense as the government official, and while his responsibilities to his own population group and to the industry are of the same kind as those resting upon the municipal health officer, the vital statistics and disease records which constitute his epidemiological tools of necessity are of a different character. Of mortality records he has little use, and of reports of communicable diseases ordinarily on the health department's list of notifiable diseases he has relatively little need. He is more concerned with indicators of health, with records that are far more delicate and responsive measures of deviations from good health than the registration of deaths or of certain epidemic diseases. The short illness that can be described only in terms of a symptom is a fact of great importance not only because it results in loss of efficiency but because it *is* a symptom and, if recurring, may be a sign of serious deviation from health. Ailments and diseases that do not come to the notice of the municipal and state health officer are the principal objects for preventive work by the industrial physician. Again, while

*Read at the Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons, St. Louis, Mo., May 27-28, 1922.

the public health official relates the incidence of disease and death to only general conditions unless he is making a special epidemiological study, the industrial physician must relate the incidence of symptomatic ailments and of disease to as specific conditions as he can in order to make his preventive work immediately effective.

If we agree that the industrial medical director should be equipped with this sort of knowledge, and proceed to the further consideration of the matter, two questions suggest themselves: What facts, specifically, should be made available? And, what are practicable means for rendering them available?

The specific nature of the information desired must, of course, be determined largely by the individual medical director in accordance with his particular needs, but there are certain considerations which I believe are applicable to any system of sickness records and which our experience has shown are fundamental if the records are to have a value in preventive work.

Briefly stated, these considerations are:

(1) In any system of sickness records provision must be made for expressing the incidence and prevalence of a symptom, of a disease in terms of *rates*. This may not be necessary for the tabulation of disease incidence for current purposes since the size of the plant, or the number of persons employed in a given department or occupation is kept in mind; but it is essential to any statistical analysis. A simple statement of this principle may be made as follows: That every provision made for classifying cases into nativity, sex, age, occupational, or other groups should be accompanied by a similar provision for classifying all of the employees for whom case records are available in order that the incidence of ill health may be expressed proportionately to the number exposed to a given condition or set of conditions.

(2) While a "standard" form for recording ill health is impracticable yet there are certain basic items of information without which no analysis can be complete enough to warrant dependable conclusions. These items classify themselves into three kinds, namely: (a) Items relating to the individual and affording the basis for the proper grouping of individuals according to inherent differences, such as nationality, nativity, or race; sex; and age. (b) Items relating to the conditions under which the individual works and lives such as occupation, department; wage rate or earnings, as indices of economic status. (c) Items indicating the physical condition and health of the individual, such as—occurrence of symptoms of ill health, disease incidence, physical defects as ascertained through examination, and absence from work on account of sickness.

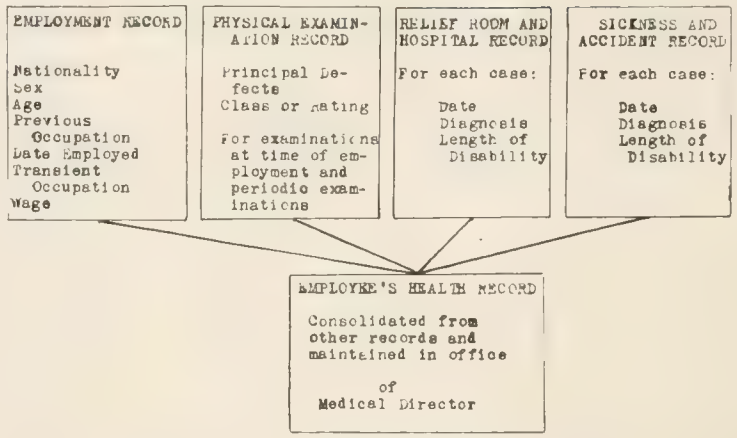


Fig. 1. Where three or four separate records are kept in as many different departments—employment, physical examination, relief, and hospital—the data are to be brought together on a single card, the consolidated card linking together the information necessary for the health administration of a plant.

Continued Observation

To these may be added a fourth group of items if it is desired to measure the effects of ill health in such terms as production, loss of working time, irregularity in attendance, loss in wages, etc.

(3) The scientific, the common sense method of finding out what effects various conditions have upon the health of the worker is that of *continued* observation of the worker under those conditions, using the record of his deviations from good health as the measure of the influence of the conditions themselves, after taking into account such factors as race, sex, and age and certain conditions of environment. In such a procedure we adopt the essential principle of sound laboratory theory and practice and, although conditions can not be controlled to the same extent as they are in laboratory experimentation, it should be rendered increasingly practicable to observe the effects of specific conditions while at the same time evaluating statistically the effects of other conditions. Much emphasis has been given in recent years to the "cross-section" or the survey method. A plant is "surveyed" in order to find out what hazards to health exist, but the judgment of whether a condition is "good" or "bad" is based on experience elsewhere, or too often on theoretical and general grounds. Groups of men are given physical examination and placed on jobs usually upon rather general considerations, or conclusions are drawn from the presence of specific defects as to the effect of occupation. I can not but believe that, because of inadequate data and at times unsuitable methods, conclusions have been reached that have been unjust to the industry and, on the other hand, probably serious conditions have been overlooked, because we have not used the right kind of methods for discovering them.

The continuous record of the occurrence of ill health for each employee is an important step toward affording such a method. It is in line not only with principles of scientific research but it is essentially the physician's way of keeping track of his case. It is sound and, we believe, thoroughly practicable.

(4) The sickness record of an employee is a dependable measure of his health provided, however, that illnesses of *short* duration be recorded, even though some diagnoses be statements of symptoms only.

In one large company the annual sickness rate was 1,573 per one thousand employees when all sicknesses lasting one day or longer were included, but the rate was 317 per one thousand when only sicknesses lasting seven days or longer were included. Eighty per cent of the disabilities would not have been noted if the records omitted those of less than seven days' duration.

Two large plants, one recording sicknesses resulting in not less than one day's absence from work and the other recording only sickness of seven days or longer in duration, showed the following experience for a year:

Plant "A," recording only sickness

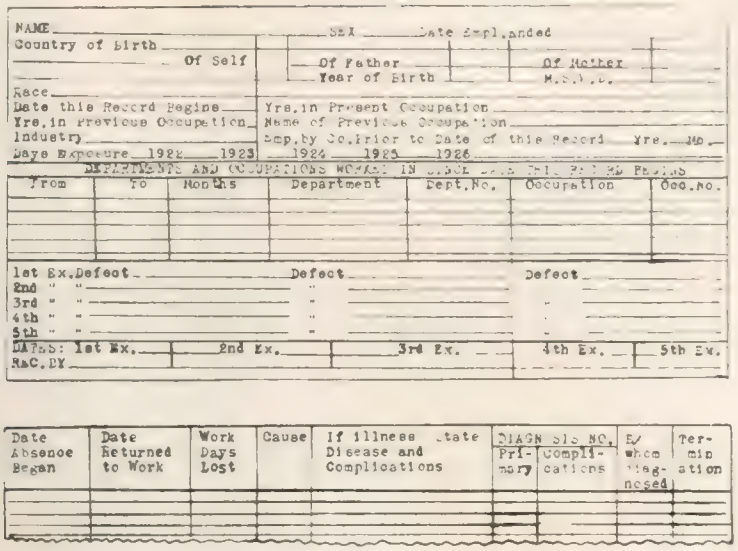

NAME
Country of Birth
Of Self
Of Father
Year of Birth
Of Mother
Race
Date this Record Begins
Yrs. in Present Occupation
Yrs. in previous Occupation
Name of Previous Occupation
Industry
Dep't by No. Prior to Date of this Record
Yrs.
Mo.
Days Exposure 1922 1923 1924 1925 1926
EMPLOYMENTS AND OCCUPATIONS WORKED IN U.S.S.R. Prior to Present Period
From
To
Months
Department
Dept. No.
Occupation
Occ. No.
1st Ex. Defect
Defect
Defect
2nd " "
3rd " "
4th " "
5th " "
DATES: 1st Ex.
2nd Ex.
3rd Ex.
4th Ex.
5th Ex.
RAD. DX
Date Absence Began
Date Returned to Work
Work Days Lost
Cause
If Illness state Disease and Complications
DIAGN SIS NO.
Primary
Complications
By whom diagnosed
Termination

Fig. 2. A mass of records of this kind will afford an adequate basis for statistical analysis of ill health and loss of time resulting. They will afford comparisons as to age, sex, race, and will give the necessary information as to cost of preventable disease and the cost of prevention.

lasting seven days or longer showed a rate of 120 per 1,000 employees, while Plant "B," recording all sickness over one day's duration, showed a rate of 1,990 per thousand employees.

The shorter the illness which is recorded with a diagnosis or a statement of symptoms, the more *specific* is the sickness record. The sickness record thus becomes a continuous case record for the individual employee. For a group of employees working under given conditions such a record furnishes a series of observations on the reaction of the individuals to those conditions. For example, comparing Plants "A" and "B" again:

Disability	Plant A Only sicknesses lasting over 7 days recorded	Plant B All sicknesses lasting 1 day or longer recorded
Colds (86)	0.0	197.8
Bronchitis (89, 90)	8.4	42.6
Pneumonia, all forms (91, 92)	4.8	6.7
Tonsilitis and other diseases of pharynx (100)	7.7	195.9
Stomach disorders (102, 103)	1.4	88.1
Headache (189)	0.0	88.1

In Plant "A" the sickness record is of little value except for serious illnesses.

It approximates a mortality record rather than a health record.

(5) Simplicity in the recording and analysis of the records: The fewer the facts and the more significant these facts are, the greater will be the return in actual knowledge gained. In some industrial establishments when a real effort has been made to inaugurate morbidity records the mistakes have been made of going into too great detail for obtaining current information and of making too many tables. This is largely the result of a failure to keep in mind exactly what the records are for.

Summary of Suggestions

The completeness of our charts or the magnitude of our mass of tables do not indicate in any sense of the word the real value of the data. I would say that the surest way to destroy anyone's faith in statistical data is to overwhelm him with charts and tables that do not mean anything definite and worth while from the point of view of the real problem at hand.

Is it practicable, granting that they are desirable and even fundamental, to put these things into operation?

The best answer to this question probably is the simple statement that they are already in successful operation in some establishments where the medical directors have realized the need for an adequate method of keeping track of the health of the employees and have realized also the scientific value of records such as these. After three or four years of study of various systems of records we do not believe that a standardized system, with standardized record forms and standardized items of information, is practicable unless it be for the different plants operating under a single management. Nor do we believe that such a degree of standardization, even if possible, is necessary or even wise. We do feel, however, that the following suggestions are practicable and would yield as good results to industry at large and better results to the individual medical or service department.

First, that the medical director of an industrial establishment profitably may *coordinate* the employee's records already existing and make them a part of his health record, adding to the existing records an adequate record of disability due to sickness. In other words, he can utilize to a far greater degree than he does now the records already available and he can render them infinitely more valuable by possibly slight additions or modifications. Many plants which maintain medical services now keep three or four separate sets of records—employment, physical examination, relief (and hospital), and sickness and accident—for each employee. The employment record usually contains the essential information for the statistical classification of employees into the nationality, sex, and age groups; the other records contain information relating to his physical status and to his health. If they can be coordinated in some such way as I have suggested on the accompanying diagram (Fig. 1) and card (Fig. 2), the medical director will have for his use a health record for each employee on a single card. It will be noted that such a record (1) links together the facts relating to the physical status, occupation, sickness and accident experience, and loss of time for each employee on the same card; (2) enables the medical director easily to pick out the employees who need especial attention or change in job, or both; (3) affords an adequate basis for statistical analysis of ill-health and loss of time resulting therefrom according to *cause* for employees classified according to occupation and in comparable sex, age, and nationality groups, when such an analysis is advisable or necessary; and (4) can be adapted so as to afford the necessary data as to cost of preventable diseases for comparison with cost of prevention.

Second, there will develop gradually a standardization in definition of terms and in the items of information recorded if some slight machinery is afforded for associating those who are working in this field. There is already a pressing need for a standard classification of the causes and symptoms of sickness. There is already expressed on the part of many medical directors a hope that "normal" sickness expectancy, from all causes and

for specific causes, can be worked out in order that comparisons can be made with actual experience. But these things can come only as experience accumulates. If through some concerted action the medical directors of even a few plants can cooperate in a small number of essentials, the rapid accumulation of experience will be along more definite lines and will be more useful to all concerned.

Lastly, no discussion of industrial sickness records should be closed without a reference to the very great contribution they can be to the scientific study of the causes of ill health and to the prevention of disease. Do you know that even in this enlightened age there are only a bare half dozen diseases about which we know anything as to their true incidence and prevalence? We have mortality records, such as they are, of the diseases that result in death, but we do not know the extent to which diseases that do not result directly in death, but do cause suffering and loss of efficiency, actually prevail. We are groping in the dark yet in these matters.

Some of these days the problem of public health is going to be defined in different terms, when we know what and how much ill health—not mortality—prevails under different conditions. And the industrial physican, with his invaluable records of the health of thousands upon thousands of individuals, is, I feel sure, going to make one of the most important, if not the most important, contribution to a scientific diagnosis of the health of the people.

Factors Determining Length of Work Day*

Task System and Internal Drive to Work Possible Solutions of Problem

By REYNOLD A. SPAETH, Ph.D., School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

THE length of the work day appears at first as a problem of amazing complexity. At the outset, the questions arise as to how long can a man work or how long *should* he work. In the end, it resolves itself into the problem of how long *will* a man work. Our viewpoint of the crux of the problem presented by modern industrial conditions is best summed up by the old proverb, "You can lead a horse to water, but you cannot make him drink."

In considering the purely scientific problem of actual physical performance of men and women under industrial conditions, we find that their performance varies with (a) the nature of the work, and (b) the nature of the worker. The industrial investigations that were made during the war, especially in England, have given convincing statistical evidence that when output is plotted against weekly hours of work, the graph slopes to the base line on either side of the optimal peak. In other words, there is a point beyond which output *falls* whether hours are increased or decreased. In general, it is safe to say that the chance of reducing hours without reducing output is directly dependent upon the percentage of human energy expenditure in any particular job. For example, Dr. Vernon found that in the heavy, strenuous task of sizing fuse bodies, the output of men was increased 22 per cent by reducing hours 12 per cent. In a second case, this time of women engaged in moderately heavy work, a 9 per cent rise in production followed at 31 per cent reduction in hours. Reducing hours becomes less economical as semi-automatic or automatic machinery more and more determines the speed of an industrial process. Thus, women employed at the light work of milling screw threads, a process where for four-fifths of the time the operatives may stand or sit idly watching their machines, had their output reduced 1 per cent by a 25.9 per cent reduction in hours. With a nearly straight machine process when hours were reduced 24.8 per cent, output fell 3 per cent.

Primitive Stimuli to Work

The striking thing about these figures is the tremendous disparity between the percentage reduction in hours and the change in production. Even when due allowance is made for the fact that these production figures were obtained under the abnormal emotional stimulus of war, it is clear that there comes a point beyond which it pays neither the employer nor the employee for the latter to stay on the job. In the automatic and semi-automatic machine processes, this optimum point lies between a nine and ten hour day. As work becomes heavier with a longer "handling time," the optimum shifts towards the shorter day of seven or eight hours. If Vernon's figures are accepted as representing a universal truth or even a tendency, we must conclude that it pays the employer to have machine operatives on a nine or ten hour basis. Considered then as a part of the mechanism of industry, machine employees can be worked ten hours a day profitably to the employer, and, so far as scientific methods have been able to determine, in most cases without physical injury to themselves. Whether this conclusion can be wisely applied from any viewpoint except that of immediate profits to the employer is another matter. From the viewpoint of the employee, a machine that does the work of ten men and needs but one operative forces a longer schedule of hours on that single operative at the same time that it throws nine men out of work. What, exactly, does the employee get out of it? He gets the advantage of lightened physical labor; but he is absorbed relentlessly into the machine, becoming a part of its mechanism.

It is scarcely necessary to discuss in detail the importance of physical job-conditions and the part they play in determining output. The importance of adequate illumination, humidity, temperature and seating facilities have lately been studied in great detail. The physical aspects of the work-day problem involve, on last analysis, the discovery of the most efficient relation between work periods with their resulting fatigue and rest. It follows that any factors which contribute to the production or elimination of fatigue must play an important rôle in the problem of optimal industrial performance.

Assuming that ideal physical working conditions have been secured; that the physical condition of our personnel has been examined; and that so far as practicable a job and man have

*Read before the Fifteenth Conference of Pennsylvania Industrial Physicians and Surgeons at Harrisburg, Pa., May 26, 1922.

been brought together by the use of the various predictive psychological methods, we find that if an organization is really to be a successful, going concern, it must have a combination of subtle psychological influences, involving both the incentives to work and the mutual attitude of men and management. This phase of the workday problem is so important and has been so largely neglected in practice in the past that it will repay closer examination.

The stimuli that urge men to work fall roughly into two groups. The first and more primitive is the fear of privation and death. Self-preservation is a deep-seated instinct. Man must eat, and he will work at least enough to secure food. At the bottom of the scale of wage earners is the stake-worker and hobo, a sort of social manic-depressive. He works until he has enough to live on for a short time and then quits, only to work again when his "stake" is gone. The reward here is existence plus a few simple pleasures, perhaps even the beginnings of luxuries. The extent to which money will *drive* men to work is largely limited by their imagination, cultural level and social responsibilities—wives and children. During the war there were numerous instances of financial saturation when certain expert craftsmen preferred to work but three days a week and lie abed the other mornings revelling in the mere sensations of opulence.

Money, then, for the sake of gaining the necessities and the simple luxuries of life, represents the most primitive stimulus to work. It is even more powerful as an indirect one. Its possession leads to distinction; and all men of imagination desire distinction and its recognition by their fellows. Closely associated with the desire for distinction, is the desire for power over the lives of others. At this point, the element of compulsion ceases to be external and superimposed; we are now dealing with our second group of incentives, internal, spontaneous, and astonishingly effectual.

The spontaneous, internal urge on the part of professional workers—physicians, teachers, lawyers, scientific investigators—is a well known fact. The professional man or woman's workday is limited only by opportunity, on the one hand, and considerations of health, on the other. Call it interest or curiosity in his fellow men, their relations with each other or their environment, there is present some sort of internal drive that operates almost completely independently of external compulsion. The two factors of working essentially for his personal advantage and a continuous sense of progress, play an important rôle in the professional man's driving mechanism.

Inner Drive, Not Compulsion

The internal drive on the part of the craftsman or the industrial worker is less understood. Too often its existence is doubted or even denied. The present "open shop" drive, however cleverly its organizers rationalize truth into obscurity, is backed by the conviction that only by the application of stern external compulsion can men and women be got to work. It is true that if you can force workers down and keep them down near a bare subsistence level, using the whip of unemployment to keep the regulation of wage rates strictly within the employer's grasp, you can force them to work in order to live; and you can then determine a suitable length of the work day for them as human machines, balancing physiological needs, job conditions, time worked, output and profits; or you can burn them out like electric bulbs and get new ones when you need them. But, in the first place, you will waste an enormous amount of energy in getting and keeping the workers with imagination and will power "in their places;" and, in the second place, they will fight you constantly with your own weapon, external compulsion. By strikes and "labor troubles," by direct sabotage, and "conscientious withdrawal of efficiency," the worker today expresses his rebellion against being held to a level that no longer satisfies his imagination. With compulsory education, cheap transportation, movies, and crowding into cities, the industrial worker of today has become a person with whom to reckon with something more than external compulsion whether the employer likes it or not. The method of compulsion from without is, to a large extent, simply outmoded; it is economically and psychologically unsound.

There remains to release and make operative the internal compulsion which is analogous to the internal drive that spurs on the professional man. We hear of the "instinct of craftsmanship"—the "will to work." Whether or not we understand it, it exists. There is really no miracle connected with those occasional and mysterious cases of industrial tranquility where an extraordinary spirit of loyalty and cooperation in industry takes the place of labor troubles. It is worthwhile to examine those establishments that have avoided strikes and disputes; that have maintained not only their output but also the enthusiastic cooperation of their labor force.

One finds in these plants a complete absence of paternalism and a form of "scientific management" worthy of the name, an application of common sense combined with a knowledge and understanding of human behavior. Wherever possible, the decision and responsibility for such matters as distribution of work and length of work day are shifted, to a large extent, on the shoulders of the employee. Native executive ability and personality are permitted to make themselves felt. By regulating within limits their own hours of work and rest, an interest at least in the organization of their work is permitted to the workers. Frequently in these plants the employers take advantage of a deep-seated human tendency to idealize a personality. They build their organization or its departments around one well chosen man. He becomes a local god. He is honest and square; he can do no wrong. The employees believe in him and through him in the management. In short, successful and modern industrial organizations are exploiting undreamed-of sources of industrial tranquility by the intelligent releasing of an inner compulsion to work. Once we discover the particular combination of physical and psychological conditions under which men and women are most willing to work, we may then ask how long should they work.

An instance of internal drive, interesting because of the modern touch, is that of a small girl whom I saw in a rubber-shoe factory two years ago. This child was seventeen years old and worked on a task basis. She could complete seventy pairs of rubber shoes by hand per day. I watched her work for a long time. I learned that she came into the plant at seven o'clock, got on the job at once, had all her materials laid around her according to the best scientific management which she had devised herself, and worked until 1:30 or 1:45 p. m. She would not talk to me. She was too busy. I asked her sister what the drive was that made her make this production record, and the sister said: "She has to get to the movies at 2 o'clock." Here we had a novel incentive in the case of this child who felt that she had to get her job over if she wanted to get to the movies on time.

If we consider the variability of human beings, it seems to me that some kind of task system has much

to recommend it. I believe that this is more logical than a fixed hours of work program; because to let all work with a rapidity in proportion to their skill and ability, and let them quit when through, would supply a tremendous incentive. The danger, of course, is that the task might be unduly increased without an increase in wages, and that this would lead to soldiering. We cannot go into the subject of soldiering which was the original difficulty at the Midvale Steel Company. The men found that when they had once made a high record, there was no chance to go back to less efficient production and that their wages were not correspondingly increased.

During the past century, the work day has been gradually shortened from sixteen to six hours. The reason was fundamentally economic. It was good business to shorten the work day. Perhaps I am not too optimistic in saying that I believe I see an eager appreciation on the part of the employers of the value of cultivating this gold mine of energy that is available, instead of using the old drive of compulsion from without, by spending their efforts on that of compulsion from within. If employers will turn to the much more profitable field of developing this enormous source of energy of compulsion from within, the work-day problem will have lost much of its present seriousness.

Discussion

Miss Mary Van Kleeck, Director, Department of Industrial Studies, Russell Sage Foundation, New York City: The Department of Industrial Studies of the Russell Sage Foundation is making a study bearing on the question of hours of work, results of which are not yet completed but the method of which may prove interesting. Shortly after the plan was put into operation in a certain plant by which the workers have representation on the board of management, that board voted for a decrease in the hours of work from nine to eight; and the workers, at the same time, urged that time clocks be installed and made a number of suggestions as to the way in which efficiency could be increased to make up for the shorter hours. The processes of cotton bleaching used in the plant were not changed during this period, and we are taking the actual output obtained from men who are in each department for certain months of 1918, 1919, 1920 and 1921, believing that we could make the estimations over the war period and immediately afterwards. Besides the simple relation between hours of work and output, we had to go into all the problems of management, not only in the plant as a whole, but also in each department. It is not safe to base conclusions on anything other than an adequate basis of facts and which include not merely the information about output and hours, but include all the other psychological factors, the attitude of the workers, and all the factors' entering into their working relationship.

Safety Code for Elevators

NOT one person in a hundred ever considers the amount of "vertical" transportation handled in a large city. The elevators in the large office buildings, hotels, apartment houses, department stores, and mercantile establishments handle in a city the size of Philadelphia or Chicago as many people as are carried on all the subway, elevated, and surface lines combined.

Governing this great transportation system, American engineers have devised a safety code to safeguard the millions carried daily by the Nation's elevators. The code is the result of the work of more than five years, during which industrial boards and commissions of many states, the United States Bureau of Standards, the American Institute of Architects, insurance companies, and manufacturers cooperated with the Committee of the American Society of Mechanical Engineers.

The code consists of seven parts, involving hoistway construction for passengers and freight elevators and for dumb waiters, power passenger elevators, power freight elevators, hand elevators, and hand invalid lifts, escalators, and operating rules. Commenting on the Code and its preparation, the New York *Times* says:

Reduction of accidents with their heavy toll of human life is the aim of the Elevator Safety Code.

The larger a city is and the more congested the business district, the greater will be the number of elevators per thousand population," said the society's statement. "Safe as modern elevator travel is, there are still a large number of elevator accidents. The number of fatal accidents throughout the country reported by press clipping bureaus for a period of five and one-half years was 978, while the non-fatal accidents totaled 1,386.

It is safe to assume that the total accidents in the entire country during this period was at least twice this number. In New York City alone, according to the Coroner's records, there were killed not less than 721 persons in a period of two years inclusive, while Chicago lists 401 fatalities for a period of thirteen years.

Contrary to popular opinion, only a very small percentage of the total number of accidents are due to the dropping of the elevators. Certainly not over 6 per cent are attributable to this cause. Modern safety devices and higher factors of safety for cables have practically eliminated falling cars as a source of accident.

Approximately three-fourths of the fatal and the serious non-fatal elevator accidents in the United States occur at the hoistway doors, and, strangely enough, these accidents are almost evenly divided between the classifications: "Falling down the hoistway" and "Crushed by moving car." Practically all such accidents may be eliminated by the installation of interlocks, which will prevent the movement of the car while the hoistway door is open or unlocked, and will hold the hoistway door locked when the car is not at the landing. The safety code for elevators issued by the American Society of Mechanical Engineers urges the use of such interlocks on all passenger elevators.

Baltimore will probably have the distinction of being the first city to pass an elevator ordinance based upon the code of the American Society of Mechanical Engineers. Several states are revising their elevator codes, which are reflecting the tendencies of the engineering code, in accord with which are the New York code and the proposed code for Pennsylvania. The Detroit City elevator code ordinance prepared by J. A. McCabe, a member of the Conference Committee of the American Society of Mechanical Engineers, contains many of the provisions of the Engineering Society's code. St. Paul is another city which is affected by the new regulations, which have been adopted by the state of Oklahoma and are being used as a basis by most of the states and municipalities when the question of elevator code revision comes up. Massachusetts and California are likely soon to adopt many of the code's provisions, which recently have been embodied in a Utah revision.

The code is already exercising a strong influence in other countries. In Japan, in the nations of South America and in the Philippines it is being seriously studied.

The entire subject of eye hazards in industrial occupations and the means of reducing or eliminating those hazards will be thoroughly discussed and brought up to date in a revised edition of Bulletin No. 12 of the National Committee For the Prevention of Blindness. The regulations of the recently developed Safety Code for the Protection of the Heads and Eyes of Industrial Workers, sponsored by the U. S. Bureau of Standards and approved by the American Engineering Standards Committee, will be included in the revised bulletin. There will also be published in this bulletin illustrations of the most modern types of head and eye shields and goggles.

The Florida East Coast Railway cooperating with the Florida State Board of Health has adopted the industrial plan for fighting venereal diseases. The program calls for the erection of sign boards at the six division points of the road on which will be placed exhibits prepared by the American Social Hygiene association. Lectures and motion pictures will also be used.

Some Industrial Phases of Tuberculosis*

By FRANK A. CRAIG, M.D., The Henry Phipps Institute of the University of Pennsylvania, Philadelphia, Pa.

TUBERCULOSIS is undoubtedly one of the most important problems which today confront those interested in the public health and welfare. Numerous investigators have devoted a vast amount of attention to the methods to be employed in the prevention of this disease, the question being considered from almost every conceivable angle. There is no more important aspect of this entire subject than that which deals with the relationship between this disease and the industrial worker and his environment. Until a comparatively recent time the campaign of prevention was chiefly directed toward the eradication of disease from among the very poor, for it is in this group that the disease is most widespread and causes the greatest amount of suffering and loss of life.

Within recent years more attention has been paid to the study of this disease among that extremely important social group, the industrial workers, and a greater effort is being made to bring about a reduction in the incidence of the disease. While perhaps not quite so prevalent in this body as among the very poor, the industrial workers constitute such a large proportion of the population and are such an important factor in the welfare of the nation that special importance is attached to the occurrence of the disease in this group.

There are several features of the industrial aspect of this general problem which call for special consideration, because, while every measure instituted for the welfare of the public at large exerts a favorable influence upon this special group, the industrial workers are exposed to certain risks and factors which are peculiar to themselves, and which are not reached by any measures directed toward the prevention of the disease among the general public. If the tuberculosis campaign is to attain its object these special features must be taken into account, and adequate preventive measures devised and put in operation.

Before it is possible effectually to handle the industrial phase of this problem it is essential that we secure reliable information concerning the actual incidence of the disease among the workers in the different industries, and, more especially, in the different occupations involved in these industries, as nothing can be more misleading to those interested in the relation between the occupation and disease, than the employment of such vague, general terms as hatter, steel workers, etc., to designate the work performed by the individual. A thorough knowledge of the disease as it affects those engaged in definite trade processes must be obtained if it is to be attacked in an intelligent and efficient manner.

Records Are Inadequate

To secure this knowledge it is necessary that a more careful and systematic method be devised for recording the incidence of disease among the workers, and so perfected and extended that it will include not only the large plants with their well organized and effective medical department, but also the smaller plants or shops with only a relatively few workers and little or no medical supervision. Until such a comprehensive system can be devised much can be done toward its development by the compiling and standardizing of the records in the industrial plants which are at present equipped with a medical service. Most of the reports published by industrial physicians at the present time are so lacking in uniformity in their methods of tabulation and their standards of defects vary so greatly that they are almost valueless for comparative statistical purposes. A recent attempt to compile the available data on the incidence of tuberculosis among industrial workers[1] was practically valueless owing to the absence in most cases of any statement of the diagnostic standards upon which the figures of the various observers were based, and the lack of specific mention of the various occupations involved, the method of examination, and such important additional data as sex, age, etc., of those examined.

While accurate information in regard to the prevalence of the disease is essential for a complete and efficient campaign against this disease, there are certain measures which may in the meantime be employed with advantage by the industrial physician in his efforts to check this disease. Before considering these in more detail as they apply to the industrial problem, it may be of interest to outline briefly the plan employed at the present time in the general campaign against this disease, as it is along these same lines that the industrial program will have to be formulated.

The prevention of tuberculosis has been carried out along two main lines, which may be termed: (1) the prevention of infection; and (2) the prevention of disease. Under the first heading may be included all those measures which are concerned with the dissemination of the tubercle bacillus; such as the prevention of promiscuous expectoration, destruction of the sputum, isolation of the infective case, early recognition of the disease, and similar procedures, dependent upon the education of the public for their successful application.

1. Craig, F. A.: "Tuberculosis As It Affects the Industrial Worker." Read before the Section on Industrial Medicine and Surgery, the College of Physicians of Philadelphia, to appear in the American Review of Tuberculosis.

TABLE I.—Sanatorium of Tuberculosis Disease* Collective Data, 1909-1919 American and Canadian Experience.

Condition at discharge	Condition at entry: Incipient cases		Moderately advanced cases		Far advanced cases	
	No.	Per cent	No.	Per cent	No.	Per cent
Apparently arrested						
Improved	[illegible]	34.0	1,162	[illegible]	[illegible]	0.5
Quiescent	3,983	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Unimproved	[illegible]	30.0	[illegible]	34.0	[illegible]	8.8
Died	[illegible]	10.3	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	0.6	[illegible]	4.1	[illegible]	33.0
Total	[illegible]	100.0	28,138	[illegible]	25,484	[illegible]

*Based on Chart showing [illegible] of length of stay or method of treatment. Published by the [illegible] of America Journal of the Outdoor Life, January, 192[illegible] p. [illegible]

*Read before the Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons, St. Louis, Mo., May 22-25, 1922

The second division includes those means which have to do with the raising of the standard of living and health of the individual to such a point that, even in cases of infection, the disease will not develop owing to increased resistance to the tubercle bacillus. We have no means at our command to increase this resistance which can be compared to the results obtained by an improvement in the general health and well being and the maintenance of this state. The successful application of the principles involved in this second division depends upon the improvement of the general living and working conditions; good food, and all that this phrase implies; proper and sufficient recreation; the prevention of other diseases and the correction of all defects; proper medical care and attention during pregnancy, illness, and following accidents; and every similar measure which will add to the general health, strength, and well being of the individual.

The application of these general principles to the special field included under the name "industry," would suggest the formulation of the following program:

Health Talks

Health talks to the employees should include such subjects as would cover the general hygiene of the body, including cleanliness, care of the teeth, exercise, rest, food, fresh air; and the importance, means of prevention and general rules of treatment of numerous diseases. The talk on tuberculosis should emphasize the means by which the disease is spread and methods for its prevention, calling to their attention the dangers of careless spitting, sneezing, coughing, etc. The importance of having the disease recognized in its early stages should also receive special consideration, not only because early diagnosis favors the patient's recovery but also because the disease can at that time frequently be arrested before the individual becomes a source of danger to those with which he is associated at home and in the shop.

The talks may be delivered in the form of lectures, placards, leaflets or articles in the house organ, or small exhibits and moving pictures may be employed to bring the facts to the attention of the workmen in a forcible and striking manner. The local tuberculosis societies, where such exist, may be relied upon to assist in this work.

For the successful prevention of tuberculosis it is imperative that these talks should not be confined to the discussion of the means to prevent the dissemination of the tubercle bacillus, but, as already outlined, should include instructions in general hygienic measures.

In the industrial plants these talks might be augmented by such subjects as accident prevention, or the interest of the workmen stimulated by selecting such topics as are of special importance in the individual plant, emphasizing those occupational diseases which may possibly be peculiar to that industry.

While reference has been made to the workmen in all the foregoing statements it is equally important in the conducting of such a campaign that the employer of labor be also educated along these lines of public health. It may be that the campaign must first be directed toward this individual or group of individuals befor it will be possible to carry it out in the plant. To bring this effectively to the head of the plant, personal interviews will be absolutely essential.

Aside from the educational campaign outlined above the chief interest of the industrial physician lies in the early detection of tuberculosis among the workmen. This is so important and presents so many interesting problems that it will be considered in more detail than has been accorded the other phases of this general subject.

If the campaign against this disease is to be effectual and meet with the success that our efforts should encounter, it is absolutely essential that the cases be discovered while still in the early stages. There are several reasons why this point is so important. In the first place, if the disease can be recognized before there is any extensive breaking down of the process and arrested in this stage, it is possible to prevent infection of the other workmen who come in contact with the individual affected. Second, it is equally essential from the standpoint of the workman himself.

The preservation of the working capacity of the individual affected, or possibly even his life, is almost absolutely dependent upon the early detection of the presence of disease. This fact is well illustrated by the chart recently published by the Prudential Insurance Company of America,[2] based upon a study of 69,500 cases, showing the results of sanatorium treatment in cases with varying degrees of involvement. Among the incipient cases, in 34.0 per cent the disease was apparently arrested; in 25.1 per cent it was improved; in 30.0 per cent it became quiescent; while in only 10.3 per cent it failed to improve and 0.6 per cent died. Among the moderately advanced and the far advanced cases the results were not nearly so good, the proportion of apparently arrested cases falling to 4.1 per cent and 0.5 per cent respectively, the unimproved increasing to 17.6 per cent and 29.7 per cent, and the deaths to 4.1 per cent and 33.0 per cent. This is well illustrated in Table I which is drawn up from the Prudential Chart previously referred to.

2. Journal of Outdoor Life, January, 1922, p. 30.

When Prognosis Is Good

On the basis of Table I it will be seen that the prospect of arrest of disease is very good among the incipient cases (1:3), but is very poor in the moderately advanced (1:24), and is almost nil in the far advanced cases (1:200); while death occurs only rarely in the incipient cases (1:166), occurs more frequently in the moderately advanced (1:24), and is very likely among the far advanced (1:3).

A study of this table also reveals a point which is worth while mentioning as it illustrates how inadequate are our present methods in the early detection of the disease. It will be seen that while only 15,807 incipient cases are reported, there are 28,138 moderately advanced, and 25,484 far advanced cases. In other words only about 22.9 per cent of the cases sent to sanatoriums are in the incipient stage, while approximately 40.5 per cent and 36.6 per cent, are already in the moderately advanced and far advanced stages respectively. If our present methods were adequate and effective there should be a much greater proportion of incipient cases being placed under sanatorium treatment than this table suggests as now being the case.

There is another factor which must be considered in a discussion of the early recognition of the disease and that is, that the earlier the discovery of a case in the incipient stage of the disease the shorter is the time usually required to bring the patient to a point where the disease may be considered as being arrested, the less time is lost from work. In the majority of cases this element of time necessary to secure recovery is equally as important as that the man regain or preserve his working capacity, and this again is almost as essential as the preservation of life.

Granting that the importance of early recognition has been demonstrated, the question remains as to what is the most efficient method to pursue in order to secure this early detection of the disease. Several plans have been tried in the past which were based upon the employment of entrance examinations combined with a re-examination of those workers in which either suspicious signs were noted at the entrance examination, or in which suspicious symptoms subsequently developed. The detection of these suspicious features being left to the nurses, foreman, or fellow workers of the individual, or to the physician himself when the man comes under his observation on account of injury, reporting for illness or some similar reason. While this plan possesses certain features which would recommend it to the heads of the plants and those interested in not having the running of the plant interfered with by frequent examinations of the employees, it is too haphazard to be considered as an efficient or comprehensive method from the standpoint of prevention.

While undoubtedly a certain proportion of cases of tuberculosis will be discovered by this method, they will in many instances only be recognized when the disease has become fairly well advanced, when they can no longer be considered as being early cases. When this disease has reached a point where its presence is apparent to the laity, on account of the general symptoms and appearance of the patient, it has usually reached a fairly well advanced stage.

The truth of this statement was very clearly established in a general examination of the 5,706 police and firemen of the City of Philadelphia recently conducted by the Henry Phipps Institute, in which nearly two-thirds, (64.0 per cent), of the cases of tuberculosis discovered had never been previously suspected, even by the individual himself. The proportion of unsuspected cases showing a gradual decrease as the extent of involvement or definiteness of the lesion increased, the proportion of unsuspected cases being very high, (93.1 per cent), among those with early or questionable lesions, and only moderately high, (56.2 per cent), among those with well developed disease.

This survey of the police and firemen was carried out by the Phipps Institute with the object of determining the incidence of defects to be found in a group of this kind, the data obtained to be used as an illustration of the value of health examinations; to furnish us with information as to the best methods to employ, the cost, time required, etc.; and to perfect an organization to conduct such examinations. The purpose of the study was the development of an industrial department which would be prepared to conduct health examinations for the industrial plants in and about Philadelphia, and to furnish them with a diagnostic clinic to which could be referred such cases as the industrial physicians felt required advice from men who had had special training and experience in their several branches of medicine and who had access to special diagnostic facilities.

We have at our command a method for the early detection of tuberculosis which is as efficient and satisfactory as any we can hope to develop in our present state of knowledge. A well organized system of complete physical examination of all applicants for positions, with a careful adjusting of the work to suit the fitness of the man, combined with periodic health examinations of the entire working force affords an efficient means of detecting disease in its earlier stages, provided the intervals between the examinations are not too long. I have been unable to secure any data which will accurately establish just how long this interval should be. Most of the plants employing periodic examinations perform them at intervals varying between one month and three or four years. The very short intervals were employed only when the occupations were extremely hazardous, as in chemical plants. It would seem that they would be most effective in any general plant if conducted annually.

When we refer to these examinations it must be understood that reference is made to a complete, general physical examination, as any examination which would be carried out for the detection of tuberculosis alone would be both inadequate and impracticable. The expense involved would not warrant such studies for the detection of one disease alone, and it is just as important in the prevention of this disease that defects of all kinds be recognized and corrected as it is to discover signs of tuberculosis. The prevention of the development of tuberculous disease depends upon mantaining the general health of the workman at the highest possible level, which would be impossible if defects of various kinds are permitted to pass unrecognized and uncorrected.

While the periodic health examination is an essential if disease is to be detected among workmen at a time when remedial measures promise the best possible results, they must be combined with entrance examinations of all applicants for positions if the prevention of disease is to be really effective. From the standpoint of tuberculosis the entrance examination serves as a means of detecting individuals who are suffering from active disease, cases which should be at rest under treatment and not performing work of any kind if their health and life are to be preserved. These men are also possible sources of infection to the other workmen and should be rejected as a safeguard to their own health and to that of the other workers in the plant.

But the rejection of unfit and dangerous cases is not by any means the most important function of the entrance examination. In the examination of a large number of applicants a certain proportion of them will be found to be below par, possibly suffering from defects which it may be impossible to correct but which will not seriously interfere with the working capacity of the man as long as he performs work for which he is fitted and which will not tend to aggravate his disability. For example, a number of men will be discovered in which evidence may be present which points to some defect of the lungs, signs suggesting pulmonary disease, including those cases, so difficult to evaluate, with signs of slight contraction or fibroid change at one apex or both apices of the lungs. These cases often may be below the normal weight for their height and age. The selection of the kind of work these men may be permitted to perform without the risk of their pulmonary defect becoming an active disease process requires the exercise of the greatest care and judgment on the part of the examining physician. While probably the large majority of these cases may perform work of a proper kind under suitable conditions with perfect safety, they should not be assigned to any position which would expose them to such industrial hazards as dust, dampness, poor ventilation, great variation in temperature, or be allowed to undertake heavy manual labor. The entrance examination is more important as a means of fitting the man to the job than as a barrier to the unfit or dangerous workman.

Any discussion of the function of the entrance examination is incom-

plete without some reference to the classification of occupations in industrial plants, which has recently been receiving some attention, and which, if carefully planned and defined, would materially assist the work of the examining physician. Any classification of occupations must be made with the greatest possible care, with due consideration of the defects most commonly encountered and the effect upon them of every industrial position. While this is sufficiently important to receive the earnest thought and study of every industrial physician, the subject is too involved to discuss in detail in a general paper of this kind.

The phase of this subject which is of most interest and the greatest practical importance to the physician engaged in making industrial examinations is that relating to the diagnosis of tuberculosis. He is most interested in securing information in the direction of aiding him in the determination of what cases should be considered as suffering from tuberculous disease, which cases with signs of pulmonary defects might still be accepted for employment, and what signs should be looked for in the reexaminations as indicating the development of disease. For the physician to judge these cases with any degree of accuracy it is absolutely essential that he be thoroughly familiar with the manifestations of the disease, its varied clinical types, and the physicial signs and symptoms which indicate its presence, and, what is equally important, its degree of activity.

Contrary to the very general belief, this does not necessarily mean that every examining physician should be what is generally termed a "tuberculosis expert." It does mean, however, that he must carefully and thoroughly examine every case coming under his observation. More cases of tuberculosis pass unrecognized because of lack of care and thoroughness in the examination than are missed because of inexperience or ignorance on the part of the physician. The examiner must be constantly on the alert for the possible presence of tuberculosis in every case, regardless of his general appearance or state of nourishment, and he must be familiar with the signs and symptoms which suggest its presence. If he does not feel qualified to make a final diagnosis in questionable cases he should arrange to have these cases studied by someone possessing special knowledge, with access to diagnostic measures which the general physician does not possess, either by sending these cases to the specialist or by having him visit the plant.

The discussion of the physical signs and symptoms is too large a subject to consider here in detail, but reference might be made to a few signs or symptoms which may be obtained with very little effort and would assist in indicating which cases should be most carefully examined for the presence of this disease. In our examination of the police and firemen previously mentioned it was found that the presence of such signs as underweight and low blood pressure may be looked upon as signs of suspicion, and the cases with these signs should receive an examination of chest which is more thorough and exhaustive than it is practicable to give to every case. This must not be taken to mean that the chest of all others may be ignored or examined superficially, but merely that this special group should receive an extra amount of time and study. (This question has been considered in detail in a previous article of the present writer, which is to appear in the *Journal of Industrial Hygiene*).

Summary

The industrial phase of the tuberculosis problem may be said to consist of three principal divisions, namely: (1) improvement of plant hygiene; (2) education of the workman in regard to preventive measures and in regard to improved living conditions; (3) the institution of entrance examinations combined with periodic health examination. Preventive efforts directed along these three lines, if intelligently and competently executed, may be relied upon to secure results which will materially reduce the loss of time, efficiency, money, and life for which this disease is responsible in every industrial plant and in every group of workmen, and which would be reflected in an improvement in the general health of the public.

National Safety Council

THE eleventh annual meeting of the National Safety Council, scheduled to take place in Detroit, August 28 to September 1, 1922, presents many interesting features on its program. One section, devoted to plant publications, is particularly valuable in its suggestions of methods and means as applied to getting the safety message across, and a specific study is promised of the practices of ten representative publications.

Another feature, designed to bring out the functions of employees benefit associations, emphasizes the reduction in claim costs consequent to health supervision, this phase of the subject being presented by Dr. R. S. Quinby, of Watertown, Pa. Another interesting topic on the program of this section has to do with the "Relationship of Disabilities Resulting From Sickness as Compared to Those Resulting From Accident," in connection with which discussion will bring out how best to reduce sickness disability.

Throughout the program are many topics specifically related to the health program in industry, such as eye injuries, dust hazards, noxious gases, industrial poisons, diseases of occupation industrial dentistry, industrial hygiene, the part of the plant surgeon in disease and accident prevention, and the aims and ideals of the plant physician.

The following addresses are scheduled for the Section on Sanitation and Factory Housekeeping:

Miss Tracy Copp, chairman, Women in Industry Section, N. S. C., special agent, Industrial Rehabilitation, Federal Board for Vocational Education, Washington, D. C.

Dr. R. S. Quinby, chairman, Health Service Section, N. S. C., manager, Service Department, Hood Rubber Company, Watertown, Mass.

Thursday Afternoon

(1) How to Make a Sanitary Survey of an Industrial Plant, by Dr. George M. Price, Joint Board of Sanitary Control, New York City.

(2) Factory Housekeeping from the Standpoint of the Workers' Health, by H. A. Schultz, assistant manager, Bureau of Safety, Sanitation and Welfare, United States Steel Corporation, New York City.

(3) The Problem of Eye Strain in Industrial Occupations, by Dr. Nelson Black, Milwaukee, Wis., and E. Leavenworth Elliott, consulting engineer, Boston, Mass.

(4) Carbon Monoxid Poisoning, by Dr. Yandell Henderson, Yale University, New Haven, Conn.

Of particular interest is the discussion of "The Industrial Surgeon as a Safety Engineer," by Dr. Irving Condit, chief surgeon, General Accident Corporation, Detroit, Mich.

Gonorrhea and Syphilis in Industry*

By WILLIAM F. SNOW, M.D., General Director, American Social Hygiene Association, New York City.

BEFORE the World War the American health officer had established for himself an excellent record in the study of communicable diseases and the elaboration of means of combating and conquering such diseases as yellow fever, typhoid fever, smallpox, and malaria. He had, however, in general, almost entirely ignored venereal diseases, feeling perhaps that they were outside his field. With the war arose an acute sense of the necessity to study gonorrhea and syphilis—prevalent, insidious in their attack, and indirect in their methods of producing morbidity and mortality—so that today there is a reasonable, practical, organized defense against them.

In the beginning the search was for some single key method that would more or less automatically inhibit the spread of venereal diseases and prevent the development of their late disabling manifestations. No such panacea has been found. The equivalent of effective vaccination for smallpox or of the antidiphtheritic serum does not exist. It is commonly recognized that the venereal diseases cannot be controlled by any single key measure, but rather by an intelligent, well balanced combination of all measures and factors known by previous tests to have some value.

Four Major Activities

These consist of four major activities, which are:

Education.—To spread adequate and correct information about the venereal diseases.

Law Enforcement.—To bring about adequate social-hygiene legislation and law enforcement to reduce prostitution and the resulting venereal diseases.

Medical Measures.—To bring about provision of adequate and available facilities for diagnosis and treatment (free treatment when necessary) of all individuals, and to develop more uniform provision of treatment on the part of general hospitals in well correlated in- and out-patient services.

Recreational Facilities.—To stimulate community recreation and other activities which tend to improve the general well-being of the community.

By conscientious, persistent application of this program, it may be hoped that a definite reduction of new cases and prevention of serious complications and sequelae may be brought about.

There is sufficient scientific knowledge about both gonorrhea and syphilis to warrant the planning of lines of attack that closely parallel the usual procedure for other communicable diseases; that is, measures for the discovery, treatment, and control of individuals already infected. Early recognition favors success both in treatment and in prevention. It is essential to keep patients under supervision until treatment has been completed. The elimination of conditions of environment that favor the dissemination of infection by limiting the opportunities of the carrier to spread disease is necessary for the protection of persons not yet infected.

From the point of view of the employer, gonorrhea assumes an interest because of the possible resultant time loss.

The subject of gonorrhea is a matter for consideration by the employer in the planning of the general sanitation of the plant: in the problems of the washroom, the toilet, the disposal of waste, etc. Loss of time may be a factor here if opportunity is not afforded for carrying out treatment as outlined by the physician.

Perhaps, too, time is required for attending a clinic, for the use of injections, or for rest in bed.

The person with acute gonorrhea probably consumes more time in the lavatories of the plant, and in travel to and from them, than other workers —not merely for treatment, but because of urgency or frequency of urination. The elements of mental distress, lack of concentration, loss of interest, etc., may not appear very great in the case of gonorrhea, but the person with epididymitis or a fairly tight stricture is disturbed and distressed many times in a working day. The question of cost of treatment and the danger of falling into the hands of unscrupulous doctors add further to the person's unhappy frame of mind.

Syphilis, from the point of view of the employer, is more important than gonorrhea, because of greater morbidity, greater communicability, and its being a source of greater worry.

Unlike gonorrhea, syphilis is immediately recognized by the layman as a terrible thing, and the first few weeks or months of infection are fraught with anxiety. His mental disturbance over the disease, its cost, and its possible effects may be a considerable factor toward upsetting his normal relation to his work.

No medical argument is needed to prove the communicability of syphilis, or that syphilis in its active stages with open lesions is a distinct menace to people working in close contact, with common tools or utensils. This, then, should have the employer's consideration.

The morbidity of syphilis manifests itself in numerous ways, and is no doubt felt in plant costs and production rates.

Absenteeism in the case of syphilis may extend over a long period of time. A person with syphilis may have to attend the clinic or the physician's office once a week for a dose of arsphenamin. He may have a slight reaction or disturbance of too little moment to be dignified by the term "arsphenamin reaction," but he is certainly less efficient at work the following day, even though he may not have to stay away from his job. During the period of time that the patient is receiving mercurial injections, or inunctions for that matter, he is uncomfortable to say the least, and he certainly has a constant reminder of what is the matter with him. He may actually suffer considerable pain for twenty-four or forty-eight hours following the injection. Work that calls for either a standing or sitting position may be decidedly distressing and may distract the person's mind from his job to the extent of creating the danger of accident or damage to material.

A Harvest of Inefficiency

Reduced production may result from such conditions as muscular incoordination during the early stages of developing tabes; the developing ocular manifestations of syphilis; the peculiarities of the developing paretic; the bladder symptoms of an approaching locomotor ataxia; the early cardiovascular symptoms which may exist for a long time before an aneurysm or an angina pectoris is recognized; the bone and nerve involvement which cause a person to be treated for headaches or rheumatism or some other symptom before the syphilis, which is primarily the root of the trouble, is recognized. A latent syphilitic infection may play an im-

*Read before the Seventh Annual Meeting of the American Association of Industrial Physicians and Surgeons, St. Louis, Mo., May 22-25, 1922.

portant part as a factor in the immediate and late consequences of trauma. In fact, trauma in a syphilitic may determine the site of syphilitic lesions in almost any organ of the body.

While the early stages of syphilis and gonorrhea are important in contributing, through actual time away from work and as a result of mental disturbance, to reduced production, accidents, and damage to property; it is in the late disabling manifestations of syphilis that the employer reaps perhaps the greatest harvest of inefficiency on the part of the syphilitic employee, and sustains the greatest losses. The involvement of the nervous system in syphilis is a matter for serious consideration in the study of accidents.

Protection to Industry

An accident may mean damage to property, injury to employee, or both. In the case of injury, whether venereal disease contributed toward the accident or not, venereal disease in the injured delays recovery and increases the compensation payment to the injured. It has been shown that, if a syphilitic workman sustains, under certain circumstances, an injury which causes an aneurysm or paresis or any of the possible results of traumatizing syphilized tissue, he is entitled to compensation, provided it can be proved that injury arose in the course of and through employment. The pre-existence of syphilis does not lighten the responsibility of the employer for compensation for injury, disability, or death, indirectly due to syphilis.

There is hardly a phase of plant management, therefore, that may not be affected by the presence of venereal disease which is unrecognized or, if recognized, is uncared for.

What is industry doing to protect itself? In its consideration of details of plant construction and in promoting physical, mental, and social health among its employees as a means to efficient operation, have not gonorrhea and syphilis a very important place? The means open to the employer for reducing the effects of gonorrhea and syphilis are the means for early recognition of cases of gonorrhea and syphilis and their proper disposition for careful and thorough diagnosis and adequate, conscientious treatment.

Is it not feasible for industry to approach the problem through the physical examination for employment, or, where it exists, through the periodic examination, and, in addition, through the occasional examination after accident or illness? It does not seem entirely practicable or desirable to attempt to develop a short-cut such as a routine Wassermann for the recognition of syphilis. It is probable that the shortest way to the recognition of gonorrhea and syphilis is to be found in the longer procedure of the ordinary physical examination. The more value there is attached to the examination, the more important becomes the recognition of syphilis. Greater special observation in the routine examination for certain occupations facilitates the recognition of syphilis if the examiner is keyed up to a recognition of the peculiar conditions indicative of the syphilitic background. It is feasible for the clever medical man to include a few high lights or signals in his ordinary method of examining. The observation of these signals becomes incidental and requires but a few moments more in the examiner's regular procedure.

The alert examiner watches the patient's walk and evaluates mental capacity and defective hearing during the preliminary period of the examination. The ataxic gait, mental slowness, defective hearing, voice defects, irregular or unequal pupils, pupils that react abnormally to light and accommodation, large lymph glands, mouth conditions, scars not obviously due to injury, cardiovascular disturbances, and altered reflexes are some of the more common generally recognized high lights. Easily discernible symptoms when found alone or in combination make further examination for the detection of syphilis necessary.

Remedy Is Social

It is not recommended that any special emphasis be placed upon the venereal diseases in the physical examination of the employee, any more than it is desired that the venereal diseases be overemphasized in relation to the general problems of public health and communicable disease control. The important point, the thought to be emphasized, is that no health program is adequate that omits them, and no physical examination is complete that ignores them.

Should the medical department of an industrial organization provide for the diagnosis and treatment of gonorrhea and syphilis? It is doubtful whether this is either desirable or economical within the plant itself, unless there are no other facilities available or possible of development. Moreover, the employees themselves would probably place obstacles in the way of the success of such a project. The question is a social rather than an industrial one, and the community should undertake the provision of treatment facilities. If industry provides facilities for making diagnosis of venereal diseases, the cost of treatment should be the concern of the individual or of the community.

It is reasonable, however, to expect that industry should be interested in the betterment of community medical service and that it should cooperate with local authorities in the establishment of diagnostic and treatment facilities. For industrial organizations that are largely the community it may even be a profitable investment to finance entirely the community's attack upon gonorrhea and syphilis.

Cooperate with Community

The industrial physician has probably as many avenues of approach, open or that can be developed, to the health department, to the clinic, to the specialist, and to the general practitioner as any one medical person. He comes in contact directly or indirectly with a greater proportion of the population than any other trained medical individual in the community. His possibilities as a teacher or a developer of post-graduate medical work are very definite. He must be a booster of better work in the medical and allied professions, lest he have no place for proper reference for and care of the person who comes under his official notice. He has an opportunity to serve his employer, and is justified in taking that employer's time, by planning for post-graduate work for the community physicians through the county medical society and other local agencies, such as the hospital and the dispensary. It is quite possible for very interesting, instructive, and practical post-graduate teaching to be done with little effort and large returns. A recent experiment of the Medical Society of the County of Kings, of Brooklyn, N. Y., in having a practical course of weekly meetings devoted to simple office procedures, has demonstrated what a county society can do and how appreciative the profession is. Standing-room-only signs have been out since the first meeting. Such activities need initiation and guidance. The industrial physician is accustomed to orderly thinking and planning. He probably has the time and certainly the opportunity. Let him do something similar for his neighbor and ally, the local doctor. The return on the investment will be measurable in increased community health and in the advancement of industry's own welfare.

Industrial Accidents and Their Prevention

By A. WIESE HAMMER, M.D., Surgeon to the Pennsylvania Railroad, Philadelphia, Pa.

THE subject of industrial accidents is an important one and in recent years many volumes have been written, covering a variety of topics relating to accident prevention, yet, notwithstanding the marked attention focused upon this matter, the results attained have not been particularly encouraging. The title of this article, as simple as it appears, involves some of the complexities which arise under the heading of political economy, sociology, law, and surgery.

Industrial accidents may be classified as those due to physical conditions found in the place of employment; those due to certain physical or mental defects found in the individuals comprising the working force; those due to fires, explosions, and other disasters.

Methods of prevention include protection by means of safety devices, a study of the physical and mental condition of the employees, the removal of a workman from duties where there may exist some hazard peculiar to the person in question, and protection against disaster, as by means of fire escapes in the event of fire. For the best solution of the problems in such situations as these suggested, the places of employment must be carefully inspected for possibility of accidents, this inspection calling for the united study of engineers, management, employees and medical staff.

These few introductory words bring us face to face with the consideration of the burden of industrial accidents and the compensation allowed to workman for losses sustained in the pursuit of their daily work. For the equitable adjustment of such losses, the Federal Government and many of the state legislatures have special committees appointed to investigate the causes of such accidents and to devise a legal procedure whereby those suffering injuries, not the result of their own negligence, may be properly compensated.

It was estimated by the late John Mitchell, vice-president of the American Federation of Labor, that in this country at least 35,000 lives are sacrificed each year as a result of industrial accidents. Each new invention exacts its toll in killed and injured workmen. Each new speeding up of the mechanisms of industrial life, each increase in the number and size of mighty engines, brings with it fresh human sacrifices. Each year the locomotive augments the number of its victims; in each year is lengthened the roll of men who enter the dark and dampness of mines, never to return. Many thousands lose their lives in factories, mills, and mines. Many die from poisonous fumes generated in industrial processes or from poisonous substances from constant contact of the hand and lips. Many of the fatalities attendant upon the tremendous industrial movements of a great nation are well within the bounds of human control and many fatal accidents may be avoided through the exercise of proper care and restraint.

The wisdom of industries employing trained surgeons is emphasized by State Compensation Boards as a conserving agency in the realm of economics.

Not only are the injured given expert treatment directly following their accident and are enabled to return to work sooner, thus saving the company money, but compensation claims are correspondingly reduced.

The number of industrial accidents in the United States, as compared with other countries in proportion to the number employed, is as three to one. The number of deaths directly due to industrial pursuits is enormous, but as the late John Mitchell asserted, such accidents and deaths cause no shock to society, for what appears to be an "occasional" maiming or killing of an employee, is not regarded as dramatic or startling. Public apathy in this matter will yield only to an understanding of the gravity of the aggregate loss of life and efficiency.

Were it not for this indifference, more precautions would be taken to protect the lives and guard the health of these toilers; and where the fault lay not with the workmen but through the negligence of his employer, more adequate compensation for those who fall victims to the hazard of industrial occupations would be provided for. A case in point is the fact that, though the dangers incident to a miner's life are the same the world over, the number of fatalities abroad is 1.45 per 1,000 men employed or 14 per every 10,000; in this country, the proportion is 35 per 10,000, our excess rate being chargeable to the inadequate laws and imperfect enforcement of existing laws.

It is interesting to note in this connection the importance attached to the employment of skilled surgeons, a measure advocated by compensation authorities as a conserving agency in the realm of economics.

In 1911, the first Employee's Compensation Act was passed. Since then thirty-seven states have adopted similar laws. The correct interpretation of these laws in many of the states is so binding, and the provisions so drastic, that the man who would employ defectives would be foolhardy indeed. Thus, a one-eyed man who seeks a dangerous employment and is accepted, would have a claim for total disability should an accident destroying the other eye occur in the course of his occupation. Contingencies like this have caused many industrial concerns to establish a system of medical inspection of employees, especially of applicants for positions, in order to minimize the number of compensable cases.

State Compensation Boards are constantly emphasizing to industrial plants the wisdom of engaging the services of the best surgeons. This advice is based upon the assumption that the quicker the recoveries and the better the functional results obtained, so will there be a decrease in the ultimate expense. In support of this statement the words of Chas. F. Andrus, chairman of the Illinois Industrial Commission, appear pertinent:

The medical directors of the Commission can do much to assist in encouraging employers to procure the proper kind of medical treatment. They can be shown that there is nothing more costly than cheap medical work. The experience of one large firm in Chicago with their medical department illustrates it. This company was paying their medical head seventy-five dollars a month and imagined they were saving money. They concluded to change their system and put a trained surgeon in charge. The first year the medical expense increased 800 per cent. In the preceding year the Company had thirty-one law suits. In the first year of the new system, they had one suit and the claim department saved thirty thousand dollars. This was accomplished in several ways. Regardless of ex-

pense, the men would get the proper kind of medical treatment and they were able to return to work sooner. The physician told the workmen the exact truth about their conditions and did not act as a sounding board for the claim agent. The consequences were the men had confidence in the surgeon in charge and ambulance chasers did not succeed in stirring up trouble. They were ready to make a settlement on what the physician told them as they knew he was telling the truth . . . thus, it may be readily seen that cheap medical treatment does not pay.

In this connection, the Industrial Accident Commission of California, in its 1918 report, states:

The company with the closest personal scrutiny by its medical chief and the highest type of medical men to do the work, seems to obtain the cheapest and the best medical results. . . Frequently the course of a surgical case is determined by the first treatments. This leads to the thought that to obtain the best surgical results in accident cases, the injured must fall into the hands of a competent surgeon without delay. Furthermore, it leads to the thought that unless a doctor is qualified to do major surgery he should not attempt to handle a major surgical case, except in emergency, and if he is not able to handle major surgery or to perform major surgical operations, he is ill equipped to make surgical diagnosis or even to recognize major surgical conditions. The minor surgical case frequently develops into a major case. The less skillful the surgeon, the more frequently this happens.

As in all questions where legal interpretation is a *sine qua non*, the drafting of special legislation which appears to the logical mind as reasonable and effective, often receives a sudden setback when the technicalities of jurisprudence are applied to the legislation in question.

This has been pointed out by James Bronson Reynolds, assistant district attorney of New York. The Workmen's Compensation Act of his state provides that employers in certain extra hazardous occupations shall be required to provide compensation to workmen in case of all accidents, unless the responsibility of the workmen for serious negligence is apparent. The bill was carefully drafted and well considered before it was subsequently passed by the legislature. It was well received by employer and employee, and was indorsed by labor organizations as bringing no hardship upon any one and being equally fair to both sides. Yet the Court of Appeals, by unanimous vote decided that the bill was unconstitutional on the argument that such a measure is contrary to the old common law of past centuries. Reynolds[1] sharply criticises this antiquated law in its application to present day needs and conditions, and asserts:

Without attempting to pass judgment on the wisdom or the unwisdom of the particular law in question, I do believe that the time has come when we must insist that we shall be free, within certain reasonable limits to pass whatever laws as may seem to us to be just and right, that are manifestly for the welfare of our people of our time. If our courts refuse to recognize the justice of this determination, and declare that the constitution of our states, drafted to secure and maintain the liberty of our citizens, make impossible such social legislation for the promotion of well-being and social progress, then the sooner our constitutions are amended, the better.

This same authority believes that the compensation acts of the different states constitute a valuable agency for the prevention of accidents. But prevention would be better served by workmen's compensation laws if the public, the employer, and the employee—the three parties in interest—each assumed an equal share of responsibility. Under any compensation law all these will bear their burden, but the benefits of compensation will be hampered because the distribution of unassigned burdens is not equitable. If the respective responsibilities are determined fairly and imposed directly, the stimulus to replace compensation by prevention will surely become greater. The public, to reduce its share of the burden will pass more rigid laws to prevent accidents, and be impelled toward proper enforcement; employers will be more prone to install accident-preventing machinery, and the workmen themselves will be more careful and will insist on greater care from their fellows to minimize the likelihood of accident.

The attention of all concerned needs to be directed toward the inadequacy of some of our present laws and the difficulty of framing more beneficent laws that will stand up under the scrutiny of the judicial mind. In many respects the injustice of the present system is all too apparent, but in some states at least constitutional amendment is in order before we can hope for more effective laws. For ten years past studies on the subject of accident prevention were crowding the shelves of private and public libraries. The subject—most important alike to the laborer and to his employer—is ripe for effective mutual action.

In this connection, it is of no little interest to regard the charter by which Congress incorporated the American Red Cross and defined its duties. In that beneficent document, mark these words: ". . . And to continue and carry on a national relief in time of peace and apply the same in mitigating sufferings caused by pestilence, famine, fire, floods and other great calamities. . . *And to devise and carry on measures for preventing the same.*"

In the First Aid Textbook for Red Cross Workers, Surgeon-General O'Reilly offers the following prefatory thought: "Notwithstanding the many excellent works already in existence on first-aid instruction, none of the writers, so far as I know, has given much thought to teaching the *prevention* of accidents. While this subject is necessarily treated rather briefly here, at least enough is said to call attention to the importance of prevention, as contrasted with cure, and for this reason it seems to me peculiarly appropriate that this book should have the endorsement of the Red Cross, as the beneficent mission of that Society like that of the good physician in treating of diseases, should be to go deeply into causes, and their responsibility for the physical sufferings of humanity, rather than to resort solely to palliative measures."

The industrial edition of this valuable manual issues the following "nevers" and "don'ts" for railroad employees, for the public when approaching railroads, etc. For the railroad employees, there is proposed both theoretical and practical instruction in railroading, the use of safety appliances, common care on the part of employees, etc. For the passengers there are warnings: "Never cross a railway at a grade crossing before making sure that no trains are approaching." "Never jump on or off a car in motion." "Never forget that carelessness on your part in regard to these precautions not only endangers your life but the welfare and happiness of those most dear to you."

These statements may appear like truisms, but so great a number of injuries result from violations of these simple rules—these precautions believed to be innate in the mind of every sane man and woman—that the Red Cross had sixty thousand of these precautionary measures printed on posters and distributed to railroads.

At frequent intervals, papers and essays, communications and printed admonitions are being issued through factory inspectors, railroad companies, through the workmen's compensation

1. Annals of the American Academy of Political and Social Science, xxxviii, No. 1.

bureaus of the department of labor and industry, urging safer devices on the part of employers and greater care and less negligence on the part of workmen, in order to minimize the number of accidents.

Crystal Eastman, secretary of the New York Commission on Employers' Liability and Causes of Industrial Accidents, asserts that the first essential in accident prevention is complete and accurate information about accidents that are happening, not how many die, but how many are killed in proportion to the number employed. And especially important is it to find out not so much how it happened, but what time of the day it happened and how long the injured man had been working, his regularly working hours, etc.; the idea being to collect those salient facts that will enable one to analyze these accidents with a view to prevention.

Mr. Eastman, emphasizing the paucity of exact information, cites the fact that the Minnesota Labor Department secures its first notice of almost every accident through its newspaper clipping service. If, in the course of a few days no report is received from the employer, the clipping is sent to him with a notice of the law's requirement and the blank form which is to be filled in with a full account of the accident. As a result of figures acquired in this way, the following statistics are given: The largest number of cases of death and accidents were in mining, railroading and lumbering: contracting work, 37 killed, 717 injured; agriculture, 12 killed, 51 injured; public utilities corporations, 19 injured, etc.

The second essential for accident prevention is means for enforcing the accident prevention laws commensurate in equipment and power with the importance of its duty. It is a moot question whether these measures should be allegated to a special department, or combined with the factory inspection bureau of the labor department, along with the enforcement of child labor laws, and general inspection of sanitary conditions. In any event it would reduce the appalling number of preventable accidents to make rules of safety in the different trades, rules which shall have the force of statutes. The commissioner should be given, expressly by statute, summary power, in case his orders are not complied with, to call on the police and close up a factory, prohibit all operation of it until his orders in regard to safety are carried out; this summary power to be exercised, of course, only after due notice.

Recent Compensation Decisions

By DOROTHY KETCHAM, Director, Social Service, University Hospital, Ann Arbor, Mich.

THE Court of Errors and Appeals of New Jersey, February 9, 1922, decided that, where an employee fainted following an inoculation and fractured his skull, the injury was compensable as one "arising out of and in the course of employment."

It seems that during the influenza epidemic of 1918, the Company, in an effort to check the spread of the disease, administered through its company physician vaccine to those employees who were willing to take it and to their families. On October 23, 1918 this employee, Harry Freedman was inoculated at the plant with the other men of his department. On returning to his desk as a result of the inoculation he fainted and fell to the floor fracturing his skull. The next day he died. The Court affirmed the award that the injury was the result of an accident arising out of and in the cause of employment, without opinion and unanimously.—*Freedman v. Spicer Mfg. Corporation, 116 A. [illegible].*

LEAD poisoning is not compensable as an industrial accident according to the Supreme Court of Oregon in its decision of April 18, 1922. This objection may be raised in the Supreme Court.

The employee, it seems, was engaged in building cars for the Pacific Car and Foundry Company where he was occupied for seven weeks in upholstering. He states that he put nails in his mouth and that a severe case of lead poisoning ensued, resulting in obstruction of the bowels.

The Commission at first disallowed the claim, but later reconsidered it, made an adjustment, and finally specified the allowance. The question of jurisdiction will not be here discussed, the question of compensability of the disease being of interest. The Oregon law covers "personal injury by accident arising out of and in the course of his employment and resulting in his injury." In the opinion of the court, "the basic fact is without dispute that what happened was a disease contracted over a space of about seven weeks, in the ordinary conduct of the occupation in which the claimant was engaged. In other words, this is a case of occupational disease. From the precedents cited, the analogy is plain that such an objection may be raised at any stage in the Supreme Court.

The decision of the Circuit Court was reversed. The term accident was defined as including "suddenness or unexpectedness." "It does not allude to the steady and imperceptible advance of disease in the human system. It would be competent, of course, for the Legislature, in the exercise of its police power and the usual care for those who toil to provide compensation for occupational diseases, but it has not done so and we cannot read into the statute compensation for ailments which do not come within the scope of an accident caused by violent or external means."—*Invanicki v. State Industrial Accident Commission of Oregon, 205 Pac. 990.*

COMPENSATION may be awarded for an injury although there is a pre-existing disease if that disease is accelerated or aggravated by an injury but it will not be awarded if the disability is due solely to a pre-existing disease and would have arisen regardless of the injury according to the Supreme Court of Illinois, April 19, 1922.

It seems that Kenney, the employee, was injured by a fall of coal in Keller's mine. Award was given "for the reason that the injuries sustained caused the permanent and complete loss of the sight of his right eye and the permanent loss of one-third of the sight of his left eye." The award was affirmed by the Commission and the Circuit Court. It seems that about three weeks after the man's return to work, he began again having trouble with his eyes. An attendant physician made a diagnosis of tabes dorsalis and started treatment for syphilis.

The story of the injury is confused and unreasonable. "The facts that the defendant in error returned to work nine days after the injury and worked [illegible] as the mine worked, that the defect in his sight did not appear for several weeks after the injury, and that there is no evidence connecting the disability with the injury, are not consistent with the decision of the Industrial Commission. The award must be set a[illegible]. The judgment was reversed, and the cause remanded with directions to set aside the award of the Commission for fur[illegible]. [illegible] N.E.

Dietetics for Workmen

THE "personal equation" is everywhere referred to in these latter days as an unknown quantity, as if it were intangible, variable, unpredictable, and beyond control. It is incriminated with being the cause of the residue of accidents held to be unpreventable, and accounting for lowered output and for failure in general. It remained for Amar[1] to prove the thesis that the personal equation is a constant, not a variable, that it is fixed within certain limits for each individual and subject to accurate measurement inasmuch as it is the sum total of reaction times, of excitations and reposes, and that its expression through the rhythms of physiologic impulses is not modified except by fatigue. It becomes a puzzlingly uncertain factor in management only when the fundamental requirements of the human motor are not understood and properly provided for. Especially are the fortuitous accidents due to end of the day and end of the week fatigue subject to remedy through control of food periods and the proper intervals of rest.

The power machine that runs under continuous pressure must be fed by a continuous stream of energy. The human motor, through a system of combustion called nutrition, is able to assimilate and reserve food materials in a manner which permits its slow oxidation in the tissues and its utilization as the source of all the energies of the being. If such reserve is not possible through the food obtained, then the substance is rejected and is useless as nourishment.

The body of man contains about 60 per cent of water and loses about two or three kilograms of water per day in repose. Lack of water may be a grave danger and lead to respiratory, cardiac, and often nervous trouble. Besides the aliments obtained through carbohydrates, fats, and proteids, the organism needs "mineral salts," especially sodium chlorid. The latter regulates the concentration of the organic liquids, provides the gastric juice with its acid property, and aids the water to preserve the elastic state of the tissues so necessary in the transformation of its energies. The calcium salts consolidate the growth of the skeleton during its period of growth, and participate in the physico-chemical phenomena of life. The insufficiency or absence of these (mineral inanition) produces grave illness which affects the nervous system. Other minerals, such as iron manganese and zinc, seem to serve as cellular "excitants" and have a necessary part in the life of the microörganism.

The Maintenance Ration

The maintenance ration is not the same for everybody. It depends upon the total bulk of the body—which varies with age and sex—also on the external environment and on the state of repose or activity. Hence the importance of relating the dietary of the workmen to the specific requirements placed upon him. It has been definitely proved that energy is best derived from a mixed ration of fats, proteids, and carbohydrates and that the body is never indifferent to the relative proportions of the sources of this energy. The food must contain a proportion of one gram of proteid to one kilogram of body weight and enough of carbohydrates to suffice for the muscular work required. For the regulation of the temperature, the fight against cold, the nature of the combustible needs to be different.

When the organism suffers from inanition, the tissues are attacked in the order of their importance, the motor organs reacting less quickly than those of nutrition. The magnitude of effort produced depends largely on the nature of the food consumed. Men addicted to working at high speed do not develop muscularly, but have slim, rather thin bodies. They have generally less appetite than other men. It is noted by Amar that by so simple a device as regulating the hours of feeding the strength may be maintained at its peak at the time when the demand upon it is greatest. Not only must the quantity of food be maintained ample but the proper balance of rations to keep the worker at his best performance and—what is really the same thing—that without prejudice to his physical health and general welfare. In this connection it is significant that all inquiries which have been made into the dietaries of the working classes have, with few exceptions, shown that it is faulty and general not well chosen for the physiological purpose; further, it is often insufficient. Workmen are, as a rule, smaller than the general population: laborers in workshops and mills are smaller than those who live in the open air; the poor are smaller than the rich in the same country and town. Amar's report is based on French observations, but the same general conclusion was reached by American investigators in a study of 14,000 persons in the northern states. The foods chosen by this large group of workers giving bulk rather than nourishment was excessive. The *Institut Solvay* studied 1,250 working class homes in Belgium. Various occupations were represented, most of them involving heavy manual labor, but their daily consumption of proteids did not average more than 90 grams, being highest in the heaviest trades and the best paid occupations, and least in the lightest and worst paid occupations.

It is unreasonable to suppose that a balanced ration will be chosen by intuition or by preferences of taste of the individuals most concerned. Nor is the remedy for inadequate dietaries to be found by community kitchens, such have been advocated under certain European conditions. Difficulties in the way of keeping up the peak condition are obviated when adequate employees' food service is possible in industry, but the real remedy lies in the direction of public health education and is to be found (1) in instructing the masses as to what to eat and why; (2) in maintaining nutritional observations on a large scale to enlarge our scope of knowledge of the whole subject, and especially to direct economics studies toward the production of sufficiently cheap supplies to make them available to all classes. The most important phase of the work is the education of the masses along nutritional lines, for inanition due to insufficient food and the obscure disorders due to badly balanced rations are by no means confined to the great army of the poor.

1. Jules Amar: The Human Motor, E. P. Dutton & Co., New York, 1920. This work reports all the important investigations on the laws of energetics as applying to the human machine and is the basis of the summary contained in this article.

The 100-acre tract of land, formerly occupied by Camp Beauregard, north of Alexandria, has been purchased by the State of Louisiana for the purpose of establishing a colony for mentally subnormal persons. Provision will be made for about 2,000 persons. The main group of buildings will consist of dormitory units, an assembly hall, service buildings, shops, and an administrative building in which there will be a gymnasium. Truck and dairy farms will be established. There will be a competent staff of medical officers, psychologists, and social service workers.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Citizens' Military Training Camps

By GEORGE F. JAMES, Secretary, Military Training Camps Association, Central Department, Chicago, Ill.

HEALTH, efficiency, and good citizenship is the slogan of the Citizens' Military Training Camps which were initiated last year by the Government under the direction of the War Department at the suggestion of the Military Training Camps Association of the United States. This organization is the outgrowth of the pre-war voluntary camps held at Plattsburg and other points, which led to the training of nearly one hundred thousand commissioned officers for the National Army.

The first citizens' camps were held last year throughout the nine corps areas. Congress provided room for ten thousand young men while applications numbered nearly fifty thousand. On account of the exceptional success of this new movement for national health, the camps this year have been increased in number to twenty-five and room is provided for thirty thousand men.

These camps are located at advantageous sites, many of them at famous training centers for the National Army in 1917. Each army corps area has from one to four of the Citizens' Camps so distributed that there is a minimum of transportation necessary for each man enrolled. This voluntary training aims at preparing young men through a three year series, the Red, the White, and the Blue course, for commissions in the Organized Reserve or the National Guard. Every branch of the service is represented, and candidates may express their preference for infantry, cavalry, artillery, engineer, signal corps or air service units. The cavalry and the Signal Corps seem to be the most popular. In radio development a complete course of instruction is offered.

The camp training is without cost and free of all military obligation. The Government pays all expenses, including transportation, uniforms, subsistence, quarters, and equipment. Army surgeons look after the physical health, army chaplains conduct religious exercises, and army hostesses promote the social life of the camps. The only requirement for admission is good health and character; the age limits are 17 to 25.

Military drill is the main feature of the morning program; the afternoons are given to all kinds of out-door games, and the evening hours are devoted to moving picture shows, amateur and professional dramatic and musical entertainments, to in-door games and dances. There are ample facilities in each camp for libraries, reading and writing rooms, and for the entertainment of friends and relatives. Picked troops of the regular establishment give demonstrations of every branch of the service; boxing, fencing, swimming, baseball, handball, and tennis are universal sports.

The larger training centers are at Camp Devens, Mass., Plattsburg Barracks, N. Y., Camp Meade, Md., Camp McClellan, Ala., Camp Knox, Ky., Camp Custer, Mich., Fort Snelling, Minn., Fort Des Moines, Iowa, Jefferson Barracks, Mo., Camp Travis, Texas, Fort Logan, Colo., Fort Douglas, Utah, Camp Lewis, Wash., and the Presidio, San Francisco. The smaller camps are located in different sections for the purposes of coast artillery, cavalry and air service.

The training camps are merely the beginning of a great national movement for national health, the upbuilding of American youth physically,

Thirty thousand young men between the ages of 17 and 25 are receiving training this summer in twenty-five army camps in the United States.

The signal corps is one of the most popular branches of the service to the summer rookie. A complete course in radio is offered in connection with this course.

mentally, and morally, making them good citizens in time of peace and capable defenders of their country in time of need. Last year ten thousand men were trained; this year thirty thousand will attend the camps; next year it is confidently expected that the number will be doubled. That within a short time one hundred thousand men can be trained every summer is the earnest hope of President Harding. The Governors of all the United States are enthusiastically supporting this new policy which has received the unqualified endorsement of the pulpit and the press. The Military Training Camps Association first proposed this type of training and is consistently supporting it through the work of its National Officers and its nation-wide membership.

A month out of doors, with no expense, in favored surroundings and an ideal camp program is something which appeals to all red-blooded youth and promises to be a potent factor for health, efficiency, and good citizenship.

Good Health Week

THE week of October 23 to 30 has been announced as "Health Week," by certain well known industrial groups as a period most favorable for a national appeal to the public to interest itself in a wide range of subjects having to do with hygiene and sanitation, in their direct relationships to individual and community health.

Every week in the year should be a good health week, and would be if it were the habit of the individual mind to focus on essentials to the exclusion of distracting details, or if it were possible for the average person to determine precisely what such essentials are. But apathy so characterizes the average person that, in matters of hygiene and sanitation, for instance, government by experts seems to be the only solution until an enlightened public opinion can be secured through a wider publicity on the physiological and engineering problems involved and on the role of the individual in forwarding a general health program.

The educative function of committees in charge of "weeks" of one kind and another becomes highly important, therefore, in arousing general cooperation and in revising notions of hygiene to accord with the newer findings in the field of research. In the matter of ventilation, for instance, "Pure air," as a popular slogan is taken to mean, in the home, open windows; and in public places perhaps an atmosphere washed free of certain impurities and low in CO_2 content. In point of fact, the physics of the air is one thing, and its chemistry another, and the old rule laid down by sanitarians that the percentage of CO_2 may be taken to indicate the adaptability of the air for respiration purposes must give way to other considerations. Extreme humidity with stagnation of air is a greater source of poisoning than carbonic aid. Carbonic acid is a bogey; humidity and temperature control are vital. Respiratory efficiency, so closely allied to physical fitness, is bound up with such regulation of atmospheric conditions as will maintain physiologically normal reaction and oxygen pressure in each of the various organs.

Aside from respiratory demands, there must be assured the stimulus of a constant flow of fresh air, for stagnation of air adds the toxic products of an inactive skin to the discomforts of oxygen want. Even in the Tropics one may work and live in relative bodily comfort if there is free circulation of air. Health, comfort, efficiency, depend upon "preserving constant the conditions of life in the internal environment," that is, the blood. Lower the oxygen content of the blood; load it with toxic products; burden the temperature regulating mechanisms of the body with the task of overcoming the excessive heat and humidity of stagnant air, and both body and mind deteriorate.

Physiological tests, therefore, constitute the basis of all the newer tenets of ventilation experiment. Much value has emanated from the investigations of the British Medical Research Council. Our own governmental departments have contributed many important studies, and many practical suggestions have come from industrial research, such as the preliminary problems connected with the new Hudson automobile tunnel.

If all the results of this research, industrial and medical, are soon to become common property, effectual in improving the living conditions of the people, the message must be popularly stated and widely disseminated. "Health Week" gives research workers the opportunity to tell their story and, incidentally, the people are enabled to find out, not merely what particular problems of hygiène and sanitation have been the immediate subjects of study, but how and where they may find expert help in modifying unfavorable conditions in their own immediate environment.

The matter is not wholly one of atmospheric environment, however, and if physiological mechanisms are not to be hampered by unhygienic conditions, a rational program of personal hygiene must supplement the suggestions by sanitary experts on what are really engineering problems. The athlete, maintained in hard condition by conformance to an exacting régime, shows plainly enough that consistent management will achieve physical fitness. General interest in

personal hygiene is stimulated by competitive games, by gymnasiums, by recreation and health centers, and by the trade in pushing devices designed to facilitate hygienic practice. Far reaching in effect are the enterprises recently reported in the NATION'S HEALTH covering pools for industrial workers in Birmingham, the new public baths in Chicago, Johnstown, Pa., the Baltimore public laundries, and the palatial four-story bath projected for Harlem. The charity that provided facilities for rejuvenation, both of person and of linen, during the unemployment crisis of the past winter was in a high degree intelligent, for the individual rates himself largely in accordance with external signs of refinement and is by the unthinking multitude necessarily accepted on the basis of outward appearance.

Health and personal hygiene cannot be divorced. Even closer is the relationship between health and the food intake, though it is only recently that effective application has been made of the idea of training the appetite, of applying biological tests to nutrition, of specific feeding to promote growth, to increase edurance, to adapt the climatic or working conditions, to meet the requirements of age, or to correct bodily disorders.

Domestic science courses now include much that is vital in this connection. Intelligent method in budget making is being inculcated in social work, and much that is informative is finally being voiced by the daily press and in other popular channels. Such information, however, is unsystematic, incomplete, and often misleading. Health Week may be expected to favor the collection of all pertinent facts and to drive home their lesson through the intensive interest so that the health implications of every day life may be better understood and promote better hygienic practices everywhere; for, when all is said, intelligent opinion is gauged by the fund of available knowledge. In former days specific information on the essentials of hygiene has been regarded as esoteric knowledge, the special possession of the initiated. It now becomes the right of a public alive to its own problems, and interesting itself in their proper solution.

Out-door Schools Foe of Phthisis

"IN the outdoor school is found one of the cheapest, simplest, and most efficient remedies for the care and prevention of tuberculosis among children," is the statement made by Dr. John B. Hawes, 2nd, in his book "Tuberculosis and the Community" recently published by the firm of Lea & Febiger, Philadelphia.

Since tuberculosis infection takes place in the early years of childhood, and practically every child has become infected by the time he reaches the age of fourteen, the assumption is that the infection has been gained during his school years. Proper medical supervision during these years would be a great aid in the campaign against tuberculosis.

The weight of each child should be carefully kept

From the financial standpoint alone, such inspection would be practical, Dr. Hawes points out. Statistics show that the State of Illinois spends $1,187,000 annually in educating children who die of tuberculosis before reaching the twentieth year.

"Open air schools should be considered as an integral part of the public school system and in no way a public charity," says Dr. Hawes. At the present time in most open air schools only children in an anemic or pre-consumptive state are admitted. This is unfortunate, the doctor thinks, for it should be considered just as important to keep the well children strong and healthy by giving them the benefits of fresh air, mid-morning lunches, rest, etc.

There are two types of buildings used for open air schools. One type of open air school consists simply of a room in the main school building either provided with specially constructed windows or with the windows actually taken out so as to admit the maximum of fresh air. The other type is the "shack" construction, a separate building.

Clothing should be according to the seasons. In winter, Eskimo suits, gloves, and boots are essential. While it is necessary that the air be fresh, the temperature should not be less than 40 degrees F. as extreme cold, just as extreme heat, saps the vitality and does harm rather than good.

The mid-morning lunch is especially important in the open air school as the children's breakfast is liable to be inadequate as far as nourishment is concerned. Careful record of the weight of each child should be kept.

Besides teaching the children the fundamentals of disease prevention and how to maintain and preserve health, the open air school should also provide instruction to the parents. In obtaining the cooperation of the parents, the school nurse is an essential factor. By frequent medical examinations, by plenty of fresh air, proper clothing, rest, and adequate nourishment tuberculosis can be discovered and checked during the years when it is attaining a foothold.

The third pamphlet of a series, "The Schools of Your City," entitled "Health and Physical Education" has been published by the Chamber of Commerce of the United States. conditions needing attention, states the pamphlet, are nutrition, teeth, eyesight and hearing. William Mather Lewis, Chief, Education Service, is author of the bulletin.

Health Conditions in the Cook County Jail*

By R. B. PREBLE, M.D., and JOSEPH L. MILLER, M.D., Chicago, Illinois.

THE population of the County Jail is almost exclusively composed of persons accused of a wide range of criminal offenses who are being held to await judicial action on the charges against them; that a large percentage of them will ultimately be released as "not guilty," and that, whether guilty or not, they are in a large proportion of cases kept in confinement for many weeks or even months until their cases are disposed of.

It is proper to say in this connection that medical science has no concern with the question of the guilt or innocence of the people so confined. It proceeds on the assumption that every person held in detention by the public authorities is entitled to healthful living conditions, a periodic examination into his mental and physical state of health, and to adequate medical care. After a careful examination of the conditions prevailing in the Cook County Jail, we have come to the conclusion that the County authorities have conspicuously failed to perform their duty in the above respects.

Overcrowding.—It is no part of our duty to fix the responsibility for the serious conditions of overcrowding which have come to prevail in the jail, but the bearing of these conditions on the general health of the inmates cannot be questioned. The foul air resulting from the crowding of three or four men within the confined space of a single, narrow cell, and of hundreds of men into the congested bull pens; the all but complete lack of physical exercise or of recreation for weeks and months at a stretch; the absence of occupation for mind and body and the inevitable contagion resulting from such close contact cannot but result in an almost universal deterioration of vitality and an impairment of physical health even when acute disease fails to develop. It is equally evident that serious impairment of the nervous system and of the mental health of the inmates must result from living under these abnormal conditions of irritability, especially when combined, as they are, with anxiety and uncertainty as to their ultimate fate or even as to the probable length of their confinement. Wholly apart from the fact that these conditions of congestion make a proper sanitation out of the question, there can be no doubt that they produce a mental state on the part of the inmates that is highly deleterious and that may have permanent effects on their health.

Conditions Affecting Health

Infectious Conditions.—Each prisoner upon being received at the jail undergoes what is designated as a physical examination. This is given by the assisting jail physician, who comes to the institution for an hour or so every evening for this purpose. Before his arrival the prisoners received since his last visit have been searched and given a bath. After bathing, however, the prisoner puts on the same clothes, including underclothing, that he had on when entering the jail. There is no adequate provision for fumigating or sterilizing the clothing to destroy vermin or disease-producing germs, and this is, in fact, rarely done. After the examination the prisoner is assigned to a temporary cell in the receiving wing of the jail. Here he remains over night until assigned to permanent quarters. The linen used on the cot is changed only once a week, so it is possible that he may sleep on linen which has been used by five other prisoners. It is unnecessary to comment on the dangers attendant upon such a procedure, both as regards infection and the dissemination of germs.

Ventilation.—The present building was intended to accommodate some 570 prisoners. The average number actually confined is approximately nine hundred. The cells contain 380 cubic feet of air space, and these were intended for two prisoners at the most. Now, however, three or four prisoners are placed in almost every cell, allowing thus an individual air space of a little more or less than one hundred cubic feet. Inasmuch as the minimum requirement is five hundred cubic feet per person where there is through-and-through ventilation, the state of the air in one of those cells where there is no through-and-through ventilation can readily be imagined. The air simply enters at the front of the cell. At the back is the steel door which does not contain a ventilator. This door opens onto the "bull pen." Each prisoner is kept in his cell twenty out of the twenty-four hours, as he is allowed two hours twice a day for exercise.

The cell is provided with a double deck, or, in some cases, with a three-deck bunk. Where more than two or three prisoners are confined in a cell they sleep on a mattress placed on the floor in the cramped space at the side of, or under, the cot. The width of one cell measured was only four feet, eight inches.

This condition is most deplorable and can be entirely corrected only with the construction of a new jail in which due consideration is given to sanitation, and especially to the provision of adequate air space for each prisoner. Conditions in the present institution could be very much improved, however, by putting a ventilator in the steel door at the rear of the cell, which would permit through-and-through ventilation.

The "bull pens" in which the inmates are exercised are, with the exception of one, fairly well ventilated. This "bull pen" has a low ceiling, is dark and most unsatisfactory. When a new jail is constructed, it is very desirable that some plan be devised by which the prisoners may get exercise in the open air, or at least in a room with sunlight and good ventilation.

Vermin.—The relation of vermin to disease is only dimly apprehended by the community at large. To medical science, vermin are not only a nuisance and a sign of a low standard of living on the part of those who tolerate them, but a source of infection and of lowered vitality. The verminous home or institution is a disease-breeding place. The prevalence of vermin in the cells and "bull pens" of the County Jail and on the persons, in the clothing and beds of the inmates is, therefore, a condition which has to do with the health of the institution.

With the present arrangement of replacing the prisoner's clothing after his initial bath, a practice which is described elsewhere in this report, it is impossible to prevent lice, bedbugs, and fleas from gaining access to the cells. The arrangement at the present time is that, if the prisoners complain of their cells being infected with vermin, the vermin are destroyed by the use of gasoline torches. No systematic going over of the cells for this

*The section of the Report to the Chicago Community Trust on medical and health conditions in the Cook County Jail, a part of a general survey of that institution, now in progress.

purpose is carried out, but only on complaint of the inmates. This should be remedied. All cells should be gone over for the destruction of vermin at stated intervals. By the use of a torch only those vermin are destroyed in the walls or on the floor. No attempt is made to destroy those in the bed. The blankets are only washed at infrequent intervals, as a rule not oftener than once in several months and probably a very much longer period of time. As stated elsewhere, clean sheets are distributed only once a week. All of these practices favor the development of vermin in the cells.

At the present time a concession is granted for a barber shop. Fifteen cents is the charge for a shave and thirty-five cents for a hair-cut. Those prisoners without money are denied the opportunity to get a hair-cut or shave, excepting when summoned to appear in court for trial, and this again may be a very important factor in promoting the development and consequent dissemination of vermin.

Food Conditions

The relation of health to nutrition and the dependence of the latter on the regular supply of a sufficient, appetizing and well balanced diet are too well known to require special emphasis in this report. It may be said that conditions in the County Jail in this respect are far from satisfactory. Food conditions in the jail were made the subject of special study by Mr. Winthrop D. Lane. Apart from the fact that the diet is so monotonous and unappetizing in character that most of the inmates refuse to eat it and that it is so heavy and unbalanced that it produces an abnormal amount of digestive trouble on the part of those who are forced to depend on it, the features that call especially for medical notice are the absence of fresh vegetables and the almost complete lack of sugar, milk, and butter or butter-substitutes. These are perhaps, in addition to bread, the most essential elements of a balanced and nutritious diet and it is hardly too much to say that a state of health cannot be maintained without them. It is true that such of the prisoners as have money are able to procure these necessities from the jail store and that those who have families or friends able and willing to help them can procure them from the outside; but there are many hundreds of the thousands that pass through the jail in the course of a year who are compelled to depend wholly on the jail diet. We cannot blink the fact that the possession of money and friends may be an advantage in a jail as well as in the world outside, but we believe that we are warranted in insisting that where the state has placed men in confinement and prevented them from earning their livelihood, it is under the duty of supplying them with a diet which will be adequate to the maintenance of their health and strength. The question of the jail diet is being studied by a Committee of the Chicago Dietetic Association, which will make special recommendations on the subject.

Medical Service

Physician and Staff.—The medical service of the jail is directed by a jail physician and an assistant physician, who are assisted by two inmates, serving sentences. The chief physician, as required by law, calls at the jail every morning, and the assistant in the evening. Each is expected to spend as much time as may be necessary, but both are busy practitioners and have little time to spare for the most uncongenial and least profitable part of their professional work. They have, apparently, not regarded it a part of their duty to give attention to the ventilation or the sanitary conditions of the place. In fact Mr. Lane reports that the chief physician gave him the comforting assurance that "the jail is a health resort."

With nine hundred inmates, frequently changing, the full time service of one or more competent medical men is required, not merely for the purpose of devoting more time to the examination of prisoners on entrance but also to make rounds through the jail, possibly to detect in this manner incipient disease, to make physical examinations as often as required at least of all those who are suspected of having some progressive disease, and to look after the sanitary condition of the hospital as a whole. A man holding such a position should, therefore, not merely be familiar with medical diagnosis, but should also have some training in sanitation.

In addition to this physician, who would be on service all of the time, there should be at regular intervals medical inspection of the jail by a committee of medical men appointed by some such organization as the Chicago Institute of Medicine. They would thus be able to check up and detect any neglect of sanitation or medical care.

Mental and Physical Examination.—There is no mental examination of the inmates on their arrival nor subsequently during their confinement. In view of the fact that a large proportion of delinquents are feeble-minded and that many of them suffer from insanity or other psychopathic conditions, the neglect of this elementary precaution cannot be justified.

The physical examination of newly received prisoners is conducted in a very perfunctory manner. On a recent occasion forty-two men were examined in thirteen minutes, part of this time being consumed by the examiner in filling out the prisoners' record cards. On the basis of this brief examination, however, the examiner filled out each man's card for scabies, syphilis, gonorrhea, tuberculosis, condition of the heart, condition of the lungs, and general physical conditions. It is apparent that an examination of this character is practically valueless except for the detection of very evident lesions. No provision is made for examination of urine or sputum, and no Wassermann tests are made on any of the prisoners in the institution, although some of these prisoners are confined there for many months. In such a superficial examination only advanced tuberculosis could be detected. No doubt many cases of active pulmonary tuberculosis are placed in cells with healthy prisoners and the danger of contagion is very great. Not only may an infected inmate thus unnecessarily expose other prisoners, but in the poorly ventilated and damp cells and with the inadequate food provided, the disease within a few weeks may reach an incurable stage. In such an examination early scarlet fever or measles might also be overlooked, and such a highly contagious disease as itch. Even if the patient were found to have tuberculosis, no provisions are available for proper isolation or confinement in a cell or room properly lighted and ventilated. There is no provision made for the proper disinfection of the cells, so the possibility of an infection like tuberculosis being carried in this manner is certainly very great.

Hospital Care

Prisoners with minor complaints are given pills or powders by a prisoner assigned to the dispensary. In the selection of a prisoner for this position, trustworthiness, rather than any special knowledge of pharmacy, is the necessary qualification. Inasmuch as such prisoners serve short sentences, the personnel will be frequently changed. A permanent position should be established and a person selected to fill it who at least has some knowledge of pharmacy.

Serious cases of illness are treated

by the prison physician in the hospital. The jail at present has two hospital wards. These are known as Hospital A and Hospital B. Hospital A is located on the top floor. It is a large, suitably lighted, airy room with toilet facilities, which could accommodate, without unnecessary crowding, twelve patients. On the day of our visit there was just one patient in this room, a prisoner ill with pneumonia.

Hospital B is on the ground floor. It is a room approximately forty by twelve feet, and was constructed by walling off a part of a wide corridor, or what was no doubt intended for a "bull pen." The walls are simply heavy wire netting with canvas on the inside at one end. The ceiling is low. There is no outside light. The room is damp, uncomfortable and most insanitary. It has no proper toilet facilities. A more gloomy and unsuitable location for a hospital could not have been selected. This ward contains eleven beds, four of which were occupied and one of these by a prisoner who had been confined since October, 1921, awaiting trial. In this interval he had lost forty pounds in weight. From his appearance and from information gathered from the attendant it would appear he was suffering from tuberculosis, but no examination of the sputum had been made, nor were we able to find in the record book any statement in regard to the nature of his ailment.

Jail Hospital Conditions

Captain Westbrook, the jail warden, realized fully the insanitary condition of Hospital B and was strongly in favor of abandoning it and placing all prisoners requiring hospital care in Hospital A. He stated that he had been unable to do this because it would be necessary to employ three guards to be on duty at Hospital A, which is at present unguarded, and he had not been able to obtain an appropriation for paying these guards.

There is at present no provision for the isolation of contagious cases. While the institution has been unusually free from these diseases, the conditions are such with prisoners mingling during the recreation hours in crowded "bull pens" and confined together during the rest of the day in cells, that sooner or later an epidemic will develop, and provision should be made for meeting such an emergency. Captain Westbrook had already considered this matter and suggested that the "death chamber" might be used for this purpose inasmuch as it is unoccupied except on rare occasions and then only for twenty-four hours. This room is large, well lighted, and could accommodate at least four patients. The only change needed would be the installation of a bathroom and this could be placed in the store opening off from this chamber. Inasmuch as there have been very few contagious cases in the hospital in recent years, it is quite likely that this chamber could still fulfil the function for which it was intended. In plans for a new jail, however, adequate facilities should be provided for the proper isolation of contagious cases. Even with the use of the "death chamber," the facilities for isolating patients are entirely inadequate and the health of every inmate in this institution is menaced by failure to provide suitable isolation quarters. A book is provided to keep a record of patients in the hospitals, but this is poorly kept and little information can be gained from studying it.

Women's Hospital.—The hospital connected with the women's department of the jail is all that could be desired, except for convenient toilet facilities. It is a clean, well lighted room with three comfortable beds. It is the one bright spot in the hospital situation at the institution. The lack of a toilet and bath is, however, a serious drawback and one that should be remedied without delay.

Mental Cases.—There is no provision at the present time for taking care of suspected mental cases. At the time the institution was visited there was a prisoner who had been in jail since last October, and it was uncertain whether he was a malingerer or whether he was actually insane. This man was kept in a damp cell on the first floor opposite Hospital B. He was without clothing except for a pair of trousers, as this was all he would keep on. There was no cot in the room and the whole environment was most undesirable. It brings up another question which should receive attention—namely, the long period of time in which prisoners are kept in jail before coming to trial. In cases of tuberculosis or of mental trouble, long detention may easily mark the transition of a curable into an incurable condition.

Drug Addicts.—There is no doubt that drug addiction is very common among the persons committed to the county jail. The lack of an adequate examination of all inmates on admission or subsequently thereto leaves persons of this sort distributed about the jail, undetected, only to become a source of infection and serious misconduct. The well known relation of this habit to criminality and its tendency to induce vicious and reckless characteristics make it specially desirable to identify and, so far as possible, to isolate and treat its victims. Under existing conditions in the jail it will not be easy to deal adequately with this class of patients. But they should at least be weeded out from the general jail population and so disposed of as to render them subject to constant supervision and to humane treatment. It is possible that arrangements might be made to treat the more serious cases in the Washingtonian Home or other institution for the treatment of drug addiction.

Re-Examination.—At the present time prisoners who are kept in the hospital for several months are never examined by the physician unless they make some complaint. Provision should be made for the re-examination of prisoners at no longer than monthly intervals in order to detect incipient disease. While this examination should include a general survey of the patient, special attention should be paid to the chest on account of the danger of tuberculosis in such an environment.

In conclusion we respectfully submit the following recommendations:—

Recommendations Made

(1) The rule requiring examination of prisoners upon entrance should be more rigidly observed. To make such an examination and record the findings would require a minimum of ten minutes per person.

(2) The prisoner should be provided with clean underclothing following the initial bath.

(3) Hospital B should be immediately abandoned.

(4) A six-foot movable partition should be placed through Hospital A and an additional toilet and bathroom provided. One portion of Hospital A can be used for the isolation of tuberculosis patients. The addition of toilet facilities adjacent to the "death chamber" would be desirable so that this room would be available for emergency use as an isolation ward.

(5) Suitable quarters for mental cases should be provided. If this cannot be done at the jail, arrangements should be made so this group of patients might be taken to the County Psychopathic Hospital where they can be adequately studied and an early conclusion reached in regard to their condition.

(6) Better medical attention, and, if necessary, isolation of venereal cases should be provided.

(7) More complete records should

be kept of patients in the hospital.

(8) Laboratory facilities for some of the ordinary routine examinations should be provided.

(9) A full time physician, with one or more assistants, should be appointed to devote their entire time to looking after the inmates of the jail, thus enabling the inmates to receive proper medical attention and provide for monthly examination of all prisoners.

(10) A trained pharmacist should be provided to dispense simple remedies, to replace the trusty who now performs this function.

(11) The Chicago Institute of Medicine should be authorized to appoint a committee of three physicians who will make quarterly inspection of the jail and make a written report to the proper authorities.

(12) The inmates should be allowed more than the four hours for exercise in the "bull pens," in order to lessen the dangers of the present crowding and inadequate air space in the cells.

(13) A ventilator should be placed in the rear of each cell.

(14) There should be systematic extermination of the vermin in the cells.

(15) Clean sheets should be provided for each new prisoner when placed in a cell.

(16) Blankets should be cleansed and disinfected at intervals not to exceed one month.

(17) A sterilizing plant should be provided for the proper disinfection of clothing.

(18) A committee of dietitians should be appointed to make periodic inspection of food conditions and make recommendations in regard to the prisoners' diet.

(19) The plans for the new jail should make provision for the following hospital facilities and equipment:—(a) Laboratory facilities in order that some of the simpler examinations, essential in making a diagnosis, can be carried on. (b) Well lighted and well ventilated hospital space. In order to provide suitable isolation, this should be arranged in the form of separate wards of moderate size, rather than one large ward. In addition to this there should be a number of two or three-bed rooms which could also be used for isolation of special contagious cases. The number and size of these wards, and the number of the small rooms required would depend upon the size of the jail to be constructed. (c) Suitable isolation quarters for the mental, or suspect mental cases, unless it is decided that these can be taken care of at the County Psychopathic Hospital, which would be by far the better arrangement from the standpoint of medical attention. (d) All cells arranged so there would be through-and-through ventilation, allowing a capacity of 500 cubic feet of air space for each inmate. (e) If possible, an outdoor yard should be arranged where the prisoners could get exercise. If this is not feasible, then well lighted and well ventilated "bull pens" should be provided. (f) Suitable space and adequate facilities for making the preliminary medical examination. (g) A properly equipped dispensary.

Girls in Summer Camps

By ELLA L. BATES, R.N., Secretary Bisbee Health Center, Bisbee, Arizona.

MANY parents consider it their duty to send the boys of the family to a camp for the whole summer, or at least for part of the vacation period. They seem not to realize, however, that their daughters would enjoy a summer camp and would gain just as much from them physically and socially as their brothers. Oftentimes the mistaken idea that the girls would become homesick is a factor influencing parents to keep them at home.

Summer is the time of greatest physical growth. Freedom from conditions causing over-fatigue and the greater opportunity for outdoor life result in height and weight gains beyond those of other seasons. In a summer camp the child may become part of a larger and more inclusive whole than the home. He returns home with a broader vision and a better appreciation.

The summer camp affords an opportunity for simple living. The boy or girl who enters a camp with some particular food prejudice usually learns to eat plain wholesome food. In both camp and nutrition work it has been found that girls are more difficult to influence and the incentive of the group facilitates suggestion.

The group spirit which the camp fosters makes such a life especially beneficial to girls. But a camp to be of value must be carefully selected; its directors must know the girls and be interested in them. The over-indulged child here learns through contact with others that it is not always feasible to gain her own way and that popularity does not lie in always obtaining her own desires.

The camp teaches health, confidence, independence, self-control,—foundations for a physically well and mentally alert manhood and womanhood. The girl and boy who gain weight in the nutrition class or summer camp show the results of sun-

Girls enjoy summer camps just as much as their brothers. The [illegible] open is invaluable as a foundation for health and mental [illegible]

air, light, and intervals of rest in their rapid growth.

Twenty-one girls were recently taken to camp. They followed a

Wide World Photos.
Increased physical vigor means to the girl confidence, independence, self-control.

regimen of early rising and quick dressing, definite meal times, rest period after the noon dinner, exercises, and early bed hour, with the result that every girl gained from two to ten pounds each. The group showed quick adaptability, enjoyment in making new friends, and zest for adventuring. They returned home from their outing full of energy, all desiring to attend the camp next year.

To those who allow sympathy to overcome their judgment in the matter of philanthropy the following instance cited by the City of Detroit Department of Health should be an object lesson as to the futility of private philanthropy:

Herman Kiefer Hospital opened her tuberculosis ward to a man early in 1918. He stayed several months and then left without permission. He found it more to his liking to enlist the sympathy and financial support of private individuals. He asked for money to take him west so he could be cured of tuberculosis. He got it, got it many times, and he abused the kindness of the people who helped him. Individualistic philanthropy did this since 1918: It sent him to Colorado and return three times; it sent him to Illinois and return three times; it sent him to Minnesota once, and to Iowa once; it helped him into Eloise, Herman Kiefer, and the Detroit Tuberculosis Sanatorium about ten different times. Last year Detroit business men gave him $486.00 in three months.

Detroit possesses a clearing house for such cases in its Department of Public Welfare.

Largest Jewish Sanatorium

THE Jewish Consumptives Relief Society, with the dedication in July of the new central building at the Denver Sanatorium, becomes the sponsor of the largest Jewish sanatorium for tuberculosis in the world. It is not merely in the size of the project, however, that the institution is distinguished, for the whole scheme of organization is designed to meet the fundamental needs of the patients. The institution is a school for tuberculous people, maintained and supported through the good will of American Jewry, and is peculiarly adapted for the treatment of a disease that requires months and years of medical care, and an equal period of training the patient how to become well and how to keep well.

One of the most wholesome influences of the institution is the method of government by which each patient assumes certain responsibilities of self-government and is made to feel himself an important member of the community. Adequate medical care is provided in every case, but curative measures do not stop here. The necessary recreation, individual requirements of nutrition, social studies leading to necessary readjustments, and minute attention to minor physical ailments that would be overlooked in civil practice, is a part of the health regime of the institution. The total admissions for 1921 were 249, and 198 patients were discharged during the year.

Suitable occupation and graduated exercise are provided in every case, the objective being complete rehabilitation in every case finally discharged as cured. Supervision extends beyond the walls of the institution. Relapse due to a return to an unsuitable environment or to inappropriate pursuits is a discouraging feature where follow-up work is not done. It is poor economy to invest seven hundred dollars for nine months of sanitarium care, a fair average in the cases cared for, and then dismiss a patient with no further concern as to his welfare. A survey is made of all patients as to occupations from which they come, and future plans include the provision of industrial establishments on lines adapted to the needs of ex-patients as the greatest step in constructive rehabilitation.

The institution is under the able direction of Dr. I. N. Bronfin as superintendent, supported by a medical advisory board and consulting staff of physicians and surgeons.

A Vocational Guidance Bureau was opened in Prague in May, 1921, which so far has devoted itself to consultations on industrial occupations and crafts. A woman advisor talks over the child's choice of occupation with him and with his parents. The decision as to the suitability of the occupation is based upon information thus obtained and upon medical and psychological tests given at the Labor Academy. Between May 1 and September 30, 1921, the office was consulted by 500 school children.

With the dedication of a new central building costing $350,000, the Denver Sanitarium, Jewish Consumptive Relief Society, becomes the largest Jewish tuberculosis sanitarium in the world. Cultural requirements as well as physical needs receive attention here, and the system is such that the patient does not feel he is out of the world while his cure is progressing.

An Experiment With Malnourished Children

By GERTRUDE GATES MUDGE, M.A., Nutrition Specialist, and HELEN FRANCES RICH, B.S., Nutrition Director, New York City.

THE interest in malnutrition among children has grown with great rapidity within recent years. It has come to be considered not only a medical but also an educational problem. Specialists from many fields have allied themselves with this phase of child welfare work.

This brief report is submitted as constituting another method of approach to the malnutriton problem. It outlines the first of a series of experiments undertaken in order to ascertain the utility comparative value of fluid milk and condensed milk in the treatment of undernourished children.

The site of the experiment was a small New Jersey City within commuting distance of New York. From each of two grammar schools a group of sixteen children was recommended by the school physician. The two groups, consisting of thirty-two children (boys and girls), when weighed and measured were found to averaged 13 per cent below normal, the average for Group A being 9¾ pounds, and for Group B being 7¾ pounds. Children of varying ages were included; the average for Group A being eight years and for Group B being seven years.

The experiment was conducted for a period of twelve weeks, from December 1, 1921 to March 1, 1922, thus including not only the disrupting holiday season but also those months in which, according to Dr. William T. Porter[1], the growth increment is markedly less than in the fall season of the year.

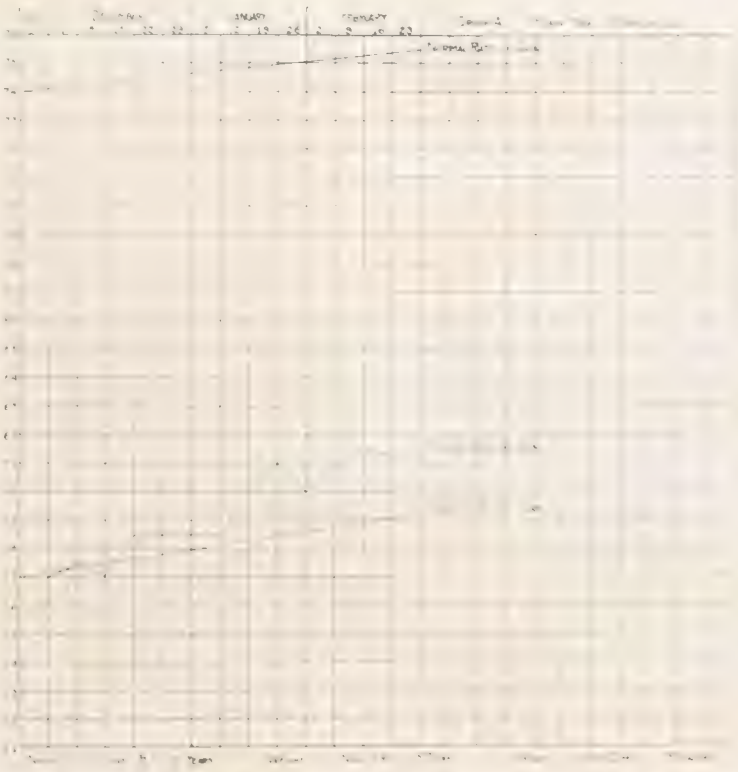
Educational, nutritional, and health work was carried on with both groups. Weekly classes were held during school hours for one school period of about forty minutes. At this time the children were weighed, the weights being recorded on tags which the children were urged to take home to their parents. Organized nutrition lessons were presented each week at which time health rules previously presented were reviewed and a new lesson given. The lessons emphasized the value of milk, of leafy vegetables, of fresh and dried fruits, and of coarse breads and cereals in the daily diet. Stress was placed upon proper habits of hygiene such as, long hours of sleep, plenty of fresh air during the day and night, and dental hygiene. Illustrative material in the nature of posters, health play, and songs were used to stimulate the interest of the children in their weight gains and improved physical conditions. A milk playlet was presented by the nutrition class children, first at a morning assembly and later for the benefit of the Parent-Teachers-Association.

Reaches into the Home

This educational work was conducted not only in the schools but also in the homes of the children which were visited at least three times each during the experiment. By this means the cooperation of the parents in the health crusade was more easily obtained and at the same time it was possible to check up on the health environment of the children. That the economic status and home conditions of the two groups were distinct factors in this experiment is shown by the comparative gains made. The children of Group A came from homes higher up on the social scale. Sufficient food was available and the parents were fairly intelligent. However, there was a decided lack of discipline and the omission of the right kind of influence in the home is reflected markedly in the rate of gains in weight. The children failed to give hearty response to the stimulus which the nutrition teachers tried to arouse in the nutrition and health work.

The children of Group B represented homes of a supposedly lower standard. There was a decided lack of food in many cases and the parents were of mediocre intelligence. In this instance, however the greater cooperation was probably due to a keener appreciation by the parents of the mid-morning feedings and a higher value placed on the lessons in nutrition and health. Group B as a whole was much more interested in their weight gains and showed more real enthusiasm for the class work, than did Group A.

Social and medical histories were secured for each child, the latter being limited to that information available from the school record. Follow-up work on the correction of physical



Typical chart selected at random from Group A. The normal rate of gain, as recommended with standards recommended by the Child Health Organization. Note: a few [illegible] Olive R. made steady progress, gaining more than was anticipated during the period of observation.

1. Porter, William T.: The Seasonal Variation in Growth of Boston School Children. Am. J. Physiol., May 1, 1920, pp. 121-131.

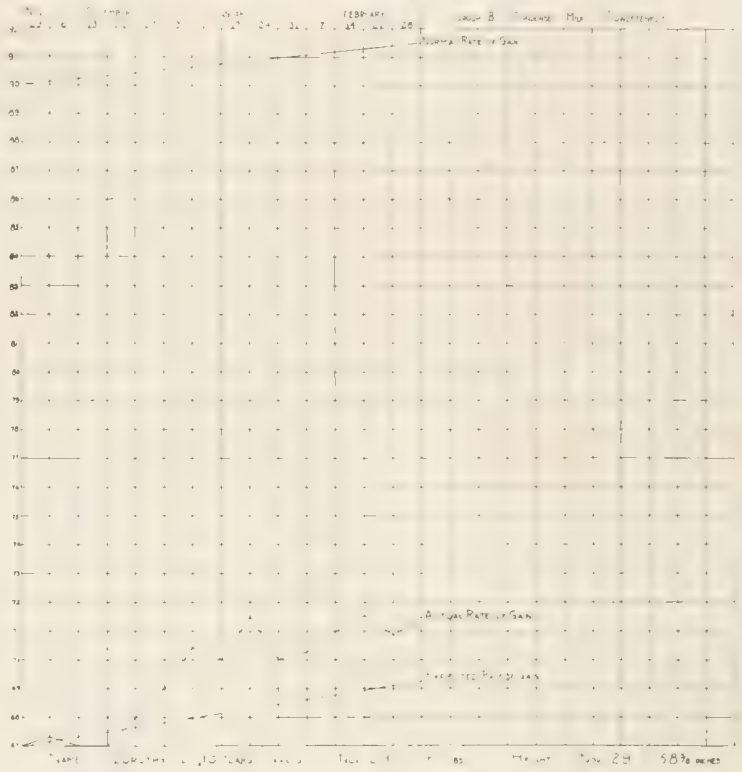
defects was attempted by the nutrition workers, but efforts in this direction were greatly handicapped due to the overcrowded tonsil and dental clinics of the city.

Mid-morning school feedings were given to both groups for five days a week during the experimental period. The children were excused from classes for a fifteen minute period each day for the feedings. Group A was given one and one-fourth cups of the fluid milk the energy value of which was about 196 calories. Group B was fed an equal quantity of diluted condensed milk of the same caloric value as the feedings of fluid milk. All children of both groups received about two tablespoonfuls of orange juice daily, making the total food value of each feeding approximately two hundred calories. Individual charts are reproduced to show the normal and actual weight curves. This graphic record of progress was watched daily and proved to be of great interest both to the children and their teachers.

Typical Case Records

Olive B., Group A. (Plain milk pasteurized.)—English. Both parents were intelligent but not cooperative. Home was bright and cheerful. Olive was in the adolescent period, and was pale, thin, and very badly nourished. She was the youngest in a family of four children and was spoiled and undisciplined. Her mother recognized her faulty dietary and health habits but was too indulgent to correct them. Interest was easily stimulated by the nutrition workers. Olive became a staunch member of the, "At Least a Pint Of Milk A Day," crusade and took a prominent part in the health play. Her window was kept wide open at night overcoming the "two-inch-window-raising" habit. She eagerly reported changes in her daily diet habits, mentioning fresh fruits, green vegetables, and cereals which she was beginning to eat. Her gain for the three months period was one and three-fourths pounds in excess of the expected rate of gain for that period of time.

Dorothy L., Group B. (Condensed Milk sweetened).—American. Both parents were of mediocre intelligence. Home was plain and neat but showed evidence of forced economy. Dorothy was in adolescent period, tall, extremely pale, thin and very self-conscious. She was the third child in a family of six children. Her mother realized the daughter's malnourished condition and encouraged her to correct her faulty health habits. The parents were very appreciative of the milk feedings at the school and of the class instructions. Dorothy was easily converted into an enthusiastic member of the nutrition class. After



Dorothy L. exhibited some ups and downs, under less favorable conditions, but with consistent cooperation was able to gain $2\frac{1}{4}$ pounds more than the expected rate of gain for that period of observation.

weeks of mid-morning feedings and instruction she began to change in appearance as well as in weight. Her heightened color, added flesh, and increasing neatness of dress made her look like a different child. During this period she suffered from numerous colds and headaches but by playing the game untiringly and giving up many bad health habits she was able to show a gain in weight, at the end of the experiment, of two and one-fourth pounds over the expected rate of gain for that period of time.

Results obtained were as follows:

Total gain in weight of group A (whole milk) 28.37 pounds.

Total gain in weight of Group B (condensed milk) 34.62 pounds.

Average gain in weight per child in Group A, 1.77 pounds.

Average gain in weight per child in Group B, 2.16 pounds.

Expected gain per month[2], 0.50 pounds.

The total gain in weight for Group B which had the condensed milk feedings exceeded the total gain of Group A by 6.25 pounds, also that the average gain per child for Group B was 0.39 pounds more than for Group A.

The resulting figures of this preliminary experiment may be taken to indicate that sweetened condensed milk has a par value with fluid milk (pasteurized) in the treatment of malnourished children of school age. Similar experiments now under way tend to verify the results herein reported.

2. Standard recommended by the Child Health Organization.

"State Parks" by Harold A. Caparn, Landscape Architect, New York City, is an account of the movement in the various states to preserve land for recreational purposes. It is published as a supplement to the *Municipal Review*, November, 1921. To date the following twenty-six states have state parks: California, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, West Virginia, Wisconsin, and Wyoming.

The June issue of *Physical Training*, published by the Physical Directors' Society of the Young Men's Christian Association of North America, contains the complete outline of the physical education program.

Europe's Cooperative Homes

HOW thousands of families in ten European countries, independent of politics and charity, are solving the housing problem cooperatively is told by Agnes Dyer Warbasse in *The American Review of Reviews*. In Switzerland, England, Scotland, Wales, France, Belgium, Holland, Denmark, Germany, and Czecho-Slovakia, the plain people have organized as part of the world cooperative movement which has a membership of thirty million families in twenty countries. Through their cooperative societies they are producing and distributing most of the necessities of life free from profit and exploitation, adulteration, benevolence, politics, and red tape.

The contrast afforded by the well regulated European cooperative building societies owning their own supply plant with the American system of building for personal profit is illuminating. Speculative building for individual profit which has resulted in trade combinations in the United States, in legal restraints, and even penitentiary sentences has been either totally discarded or is naturally disappearing in Europe, Mrs. Warbasse states.

Apartments in Copenhagen cooperative buildings rent from $14 to $37 a month depending upon the size of the apartments which range from three rooms and bath to six rooms and bath. The one visited by Mrs. Warbasse, located on the leading boulevard of the city, was built on the principle of a hollow square around a garden court covering 90,000 square feet. Each room in the 215 apartments faced either the street or the courtyard. Fire proof stairs made fire escapes unnecessary; all rooms were lighted with electricity; floors were hardwood; and the white tiled kitchen was completely equipped with gas stove and modern plumbing.

The courtyard which is required by Danish law was laid out with an eye for esthetic effect as well as utility. A high clock tower with the clock's dial facing four ways stood in the center of a rose garden laid out in the form of a Greek cross. At the four corners were children's playgrounds with swings, seesaws, athletic boards, sand boxes, and sheltered seats for the mothers. A cement walk encircling the garden and playground afforded the boys and girls a place to ride their bicycles, skate, or play games.

Berlin artisans live in this decorative cooperative house located in one of the congested districts. Three hundred and thirty-five families are comfortably housed in this apartment alone.

The homes are built by the members of the association composed of the workers, or by the municipality in some instances. Each tenant of such a home colony must become a member of the association and pay as membership fee the equivalent of one year's rent for which he receives 4 per cent interest. This constitutes his share capital.

Government loans are sometimes made to cooperative housing associations which are producing homes not for speculation or private gain, 20 per cent of the valuation being loaned by the city and 20 per cent by the district of Copenhagen. This constitutes a twenty year loan which will be cancelled at that time if the housing association has lived up to its original purpose.

Municipal houses, on the other hand, are built for the city and rented to a more or less itinerant class of tenants who are unable or unwilling to assume the responsibilities attached to membership in a cooperative association. Rents in municipal houses are higher in order to support the salaried officers who manage them.

The difficulties encountered in the United States of obtaining bricks, lumber, cement, plumbing supplies, etc., are obviated in Europe by the cooperative associations owning and managing their own factories. Two brick plants supply nearly five million bricks a year, all cement is bought from the cement workers' cooperative factory in Jutland, and cement trimmings and castings, are made in an association-owned factory in Copenhagen.

The Workers Cooperative Building Society is the central organization into which the members invest their capital for home building. Each housing group is a department of the main society and is run by the householders. The rent is collected and repairs and upkeep are made by a local committee who is responsible to the main society for the care and financing of each building.

Cooperative apartment in Copenhagen surrounding a court 90,000 feet square in which are located gardens, playgrounds for children and shaded walks.

Health of Working Children

THE Massachusetts Department of Labor and Industries is publishing a form for use in the examination of children applying for employment certificates. This form covers the main points given in the one recommended by the Children's Bureau, but is much less detailed. The Department recommends that school physicians assigned to examining children for health certificates use this schedule. Copies will be furnished on application.

At the present time there is no standard form for this purpose in use in the state. A few physicians have their own records; but in the majority of instances no form is used, so no permanent record is kept. It is important that the results of the examination should be recorded and kept on file in the office from which the employment certificate is issued. By this means it is possible, when the child returns for another certificate, to check the examination with the result of the previous one, to ascertain whether defects noted at the former time have been corrected, and to secure some information as to the effect of the work on the child's health.

A standard form for all issuing offices is desirable, in order that there may be greater uniformity in practice throughout the state, and in order to insure that the examination made covers all the essential requirements. It is hoped that the use of the proposed schedule will assist in bringing about these results, will secure a more thorough and careful examination of children applying for employment certificates than is the case at the present time.

FORM M 1922

MASSACHUSETTS DEPARTMENT OF LABOR AND INDUSTRIES

RECORD OF PHYSICAL EXAMINATION OF CHILD APPLYING FOR EMPLOYMENT CERTIFICATE

DATE

NAME ADDRESS SCHOOL GRADE

INTENDED EMPLOYER ADDRESS INDUSTRY OCCUPATION

1 SEX. M. F. 2 COLOR, W. C. O. 3 BIRTHPLACE OF CHILD 4 OF MOTHER 5 OF FATHER

6. DATE OF BIRTH 7 AGE YRS. MOS. 8 HEIGHT FT. IN. 9 WEIGHT LBS.

SIGNIFICANT MEDICAL HISTORY

PHYSICAL EXAMINATION

10 GENERAL PHYSICAL CONDITION
A. EXCELLENT B. GOOD
C. FAIR D. POOR
11 MATURITY APPARENTLY ATTAINED
YES NO

SKIN AND MUCOUS MEMBRANES
12 COLOR
13 PARASITIC DIS.
14. OTHER DIS.

EYES
15 VISION R L
16 DISEASE R L

EARS
17. HEARING R L
18. DISEASE R. L

MOUTH
19 DENTAL DEFECTS
A. CARIES
20 OTHER DEFECTS

PHYSICAL EXAMINATION

NASOPHARYNX
21 NASAL OBSTRUCTION

TONSILS
22 NORMAL
23 ABNORMAL (SP)

CHEST
24. HEART
NORMAL
ABNORMAL (SP)

26. LUNGS
NORMAL
ABNORMAL (SP)

ABDOMEN
26 HERNIA

NERVOUS SYSTEM
27 A. CHOREA
28 B. TIC
29 C SPEECH DEFECT

ORTHOPEDIC DEFECTS
30 (SP)

SUMMARY AND RECOMMENDATIONS

SUMMARY OF DEFECTS
31 A. CORRECTABLE
32 B NON-CORRECTABLE
33 TREATMENT RECOMMENDED:

CERTIFICATE RECOMMENDED
34 A UNCONDITIONAL
35 B PROVISIONAL (SP)

REFUSED
36 A PERMANENT (SP)
37. B TEMPORARY (SP)

REMARKS

I AM / AM NOT ACQUAINTED WITH THE PROCESS ON WHICH THIS CHILD IS TO BE ENGAGED.
CROSS OUT STATEMENT WHICH DOES NOT APPLY

I CERTIFY THAT I HAVE EXAMINED THIS CHILD AND THAT THE FINDINGS ARE AS ABOVE STATED.

SIGNED M. D. EXAMINING PHYSICIAN.

(THE SCHEDULE SHOULD BE MADE OUT IN DUPLICATE BY USE OF CARBON SHEETS, AND ONE COPY SENT TO THE DEPARTMENT OF LABOR AND INDUSTRIES, STATE HOUSE, BOSTON)

INSTRUCTIONS TO PHYSICIANS FOR FILLING IN RECORDS OF PHYSICAL EXAMINATION OF CHILDREN APPLYING FOR EMPLOYMENT CERTIFICATES

IN FILLING OUT RECORD BLANK USE CHECK (X) WHERE DEFECT OR ABNORMALITY IS FOUND AND DASH (–) WHERE CONDITION IS NORMAL
WHERE ITEM IS MARKED (SP) SPECIFY DEFECT OR CONDITION INDICATED

GRADE – ENTER GRADE COMPLETED

INDUSTRY SPECIFY AS COTTON MILL NOT "TEXTILE"

OCCUPATION SPECIFY AS DOFFER NOT MILL HAND

COLOR WHITE-COLORED-OTHER

BIRTHPLACE OF CHILD – COUNTRY OF BIRTH

BIRTHPLACE OF MOTHER AND FATHER – COUNTRY OF BIRTH

HEIGHT – TO BE ENTERED TO NEAREST QUARTER INCH THE CHILD SHOULD BE MEASURED WITHOUT SHOES

WEIGHT – TO BE ENTERED TO NEAREST QUARTER POUND THE CHILD SHOULD BE WEIGHED WITHOUT SHOES AND OUTER CLOTHING

SIGNIFICANT MEDICAL HISTORY BRIEF NOTATION OF PREVIOUS ILLNESSES

GENERAL PHYSICAL CONDITION TO BE DETERMINED BY SUCH FACTORS AS MUSCLE TONE THE COLOR OF THE SKIN AND MUCOUS MEMBRANES AND THE RELATION TO EACH OTHER OF HEIGHT WEIGHT AND AGE CHECK ON RECORD CARD CONDITION INDICATED AS FOLLOWS EXCELLENT GOOD FAIR REQUIRING SUPERVISION POOR REQUIRING MEDICAL ATTENTION

MATURITY APPARENTLY ATTAINED EXAMINER'S IMPRESSION

SKIN PARASITIC DISEASES HERE NOTE PEDICULOSIS SCABIES ETC

EYES A SEPARATE EXAMINATION AND RECORD OF THE VISUAL ACUITY OF EACH EYE SHOULD BE MADE THE SNELLEN OR SIMILAR TEST CARD* BEING USED ABILITY TO READ THE TWENTY-FOOT LINE AT A DISTANCE OF TWENTY FEET TO BE CONSIDERED PERFECT AND RECORDED AS 20/20 RECORD IN FRACTIONS THE NUMERATOR INDICATING THE DISTANCE BETWEEN CHART AND CHILD, DENOMINATOR INDICATING LINE READ BY THE CHILD (FIGURE SHOWN AT SIDE OF CHART) IF CHILD IS UNABLE TO READ ANY OF THE LETTERS CORRECTLY AT TWENTY FEET MOVE HIM TOWARD THE CHART UNTIL HE CAN SEE THE TOP LETTERS, AND MEASURE DISTANCE BETWEEN HIM AND THE CHART AND RECORD AS TEST IF CHILD IS WEARING GLASSES, THE TEST TO BE MADE BOTH WITH GLASSES ON AND WITH GLASSES OFF A CHILD WITH VISION OF 20/50 OR LESS IN EITHER EYE SHOULD BE REFERRED TO AN OCULIST

EARS EACH EAR TO BE TESTED SEPARATELY USING THE WHISPERED VOICE AT A DISTANCE OF TWENTY FEET CHILD SHOULD STAND WITH EAR BEING TESTED TOWARD EXAMINER AND OTHER EAR COVERED OR EXTERNAL CANAL OCCLUDED IF HEARING IS DEFECTIVE THE EXAMINER SHOULD ADVANCE SLOWLY TOWARD THE CHILD UNTIL HE CAN HEAR THE WHISPERED VOICE MEASURE DISTANCE BETWEEN EXAMINER AND CHILD AND RECORD IN FRACTIONS 20/20 BEING NORMAL INABILITY TO HEAR THE WHISPERED VOICE AT TEN FEET OR LESS SHOULD BE CONSIDERED DEFECTIVE HEARING AND SHOULD BE REFERRED TO A SPECIALIST

TONSILS – ENLARGED – DISEASED VISUAL EXAMINATION OF THE THROAT TO BE MADE WITH THE USE OF TONGUE DEPRESSOR

CHEST – EXAMINATION OF THE CHEST SHOULD ALWAYS BE MADE ON THE BARE SKIN

LUNGS TO BE EXAMINED BY PERCUSSION AND AUSCULTATION USING THE STETHOSCOPE ANY ABNORMAL CONDITION TO BE SPECIFIED

HEART – TO BE EXAMINED WITH STETHOSCOPE HEART DISEASE SPECIFY VARIETY OF ORGANIC DISEASE AND COMPENSATION

ABDOMEN PRESENCE OR ABSENCE OF HERNIA TO BE DETERMINED BY QUESTIONING AND PHYSICAL EXAMINATION WHERE SUSPECTED STATE WHETHER FOUND OR NOT, WHETHER TRUSS WORN AND WHETHER OR NOT CHILD NEEDS OPERATION

ORTHOPEDIC DEFECTS GENERAL INSPECTION OF THE BODY TO BE MADE ALL DEFECTS INCLUDING IMPAIRED MOBILITY OR DEFECTS OF POSTURE MUST BE SPECIFIED NECESSARY MEASUREMENTS TO BE MADE WHEN INDICATED BY ABNORMAL FINDINGS

TREATMENT RECOMMENDED – NOTE TREATMENT RECOMMENDED FOR CORRECTION OF DEFECTS AND TO WHAT AGENCY IF ANY CHILD IS REFERRED FOR TREATMENT FOR EXAMPLE REFERENCE TO DENTIST IN CASE OF DEFECTIVE TEETH

CERTIFICATE – CHECK AS INDICATED AND SPECIFY PHYSICAL DEFECT CAUSING RECOMMENDATION OF REFUSAL OR OF PROVISIONAL CERTIFICATE ISSUED

REMARKS – EXAMINER TO CROSS OUT AM OR AM NOT INDICATING IGNORANCE OR KNOWLEDGE OF THE PRECISE NATURE OF THE WORK FOR WHICH THE APPLICANT IS TO BE EMPLOYED

*THE DEPARTMENT OF EDUCATION WILL FURNISH A NEW SNELLEN VISUAL TEST CARD FOR USE IN THE PUBLIC SCHOOLS IN THIS STATE

This blank form is the standard set for use in Pennsylvania for the examination of working children. The card folds in the middle and is printed in a manner to facilitate ease in referring to files.

The Department is also preparing a handbook explaining the procedure in issuing employment and health certificates and badges for street trades. This will contain a section on the health certification of working children with reproduction of the new forms.

The Heart and Life Insurance

Organic disease of the heart occupies the first place among the causes of death among the general population in the registration area of the United States exceeding even the mortality from tuberculosis. Between two and three per cent of all applicants for life insurance are rejected for this cause, and it is probable that from 10 to 15 per cent of deaths of insured people are due to organic disease of the heart, according to Dr. Lewellys F. Barker, in the *National Underwriter*.

Though it is the prevalence of valvular defects due to endocarditis that is alarming among young people, it is the occurrence of other forms of cardiac disease that causes concern when older persons are studied. More should be done, and that speedily, says Dr. Barker, to ascertain the exact causes of the toxic degenerative diseases of the heart muscle and of the vascular diseases associated with chronic arterial hypertension.

In general medicine there is less concern than formerly by the mere discovery of a murmur, even when a study of the heart murmur reveals it as due to organic disease of a valve, and emphasis is shifting to heart muscle functions. The condition of the heart most often responsible for early and sudden death in men over forty is angina pectoris, a condition difficult to detect. Once an anginal attack has occurred, the sufferer is insurable only as a gamble.

The suggestions offered include the use in routine physicial examinations of such modern diagnostic methods as reveal disordered function. Safety for the insurer in estimating the risk taken in a given case requires a comprehensive diagnostic survey of every substandard risk. Internists, according to Dr. Barker, will look forward eagerly to the prognostic deductions of medical actuaries, when in the future they will have had opportunity to analyze the effects upon longevity of various deviations from normality in the heart recognizable by the newer methods of examination. It is upon early recognition and such correlation that our best hope of preventive methods depends.

KOTEX

Wherever nice women gather

LOW PRICE sometimes causes people of means and refinement to hesitate in buying a new article. Kotex is inexpensive, yet women who can afford the best were first to accept Kotex.

Kotex is sold wherever women trade—in drug, dry-goods and department stores. And in several different departments in many of the latter. No counter conversation necessary. Ask for "a box of Kotex."

Girls and women active in athletics, dancing, or business, find in Kotex a safeguard that insures their poise and comfort at all times. Kotex is cool in warm weather and always easy to dispose of.

Traveling or at home, Kotex is almost indispensable. It solves a difficult laundry problem for nice women—rich and poor alike.

It is packed in plain blue box free from descriptive matter, the name the only printing. The first box usually—the second box always—results in the discovery of a new comfort, a new convenience, a new economy, a new habit.

Keep Kotex always on hand—ask for them by name.

Regular size, 12 for 60c
Hospital size, 6 for 45c

Samples of either size, prepaid, free.

now being distribu-
theatres, and other
may be obtained
plain

Cellucotton Products Co., 166 W. Jackson Boul., Chicago
New York Office: 51 Chambers Street Factories: Neenah, Wisconsin

P. C.

INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

The Prevention of Myopia

CONGENITAL defect in the eye, causing myopia, or short-sightedness, is considered by F. W Edridge-Green, in a recent issue of the *Lancet*, to be very rare in comparison with the acquired defect. Older authorities believed that prolonged convergence of the eyes for near work caused pressure upon the eyeball and in some way caused its elongation, thus producing shortsightedness, but this author, on the basis of a detailed examination of some thousands of cases of myopia, says it is not proved in a single case that myopia had been either caused or increased by the use of the eyes for near work. The argument that the eyesight of the laboring classes is good simply because comparatively few of the working populace wear glasses is no proof that their sight is better than that of professional classes. A barrister will wear glasses for the correction of a trivial defect—as, for instance, 0.25 diopter of myopic astigmatism, whereas a dock laborer with very high myopia of —25 diopters will not wear them and does not feel the need of them.

Again, many children become myopic without having used their eyes particularly for near work. Even when the selected occupations have been given—compositor, lithographer, etc., —it will be found that the myopia was not contracted in their occupations, but that the occupation was chosen because of short sight. The incidence of myopia is given as 17 per cent in urban districts, 20.5 per cent in rural districts, and 26 per cent in mining and manufacturing districts.

A common cause of myopia is asserted to be hereditary. Edridge-Green suggests that the hereditary defect may be a special weakness of the sclerotic to give way under pressure. Among the exciting causes this author believes that first place must be given to certain diseases, as measles, whooping cough, and bronchitis. The relation in the case of measles he believes to be very definite and to account for large numbers of non-progressive myopia.

A significant relation between the occupation before, during, and after the onset or increase of myopia was found to exist between myopia and certain occupations, namely, those associated with heavy lifting in a stooping position, especially in those who appear to take no other exercise, as, for instance, carters, who have at intervals to carry heavy weights. A boy will state that he had no trouble with his eyes until after he left school; but in his employment, where he had continually to lift heavy boxes, he began to get more and more shortsighted. Again, in many of those having a sedentary occupation the form of exercise selected will be found to be one which would act in the way described, namely, boxing, wrestling, cycling, rowing, or digging. Coughing appears also to be a potent cause. A boy will state that he had nothing the matter with his eyes until after a very bad attack of bronchitis, when, upon returning to school, he is found to be myopic. Numerous cases are cited as resulting from whooping cough.

Causes of Myopia

Edridge-Green reports a case of myopia in one eye and a detached retina in the other as resulting in a man of good sight from one afternoon of excessive strain. In the case of a young musician, whose musical work caused no eye discomfort, so-called "rests" with physical work on a farm resulted in pronounced myopia.

The recommendations which have been made by ophthalmic surgeons—namely, to avoid reading and writing in a stooping position, and to secure good lighting, ventilation, and other hygienic conditions—he considers advisable, but they do not seem to produce much effect in the prevention of myopia. In diseases which are followed by myopia, such as measles and whooping cough, special care should be taken of the eyes, especially in those with an inherited tendency to myopia; and during convalescence the exercises should be very carefully regulated, those forms of exercise which raise the intra-ocular pressure should be avoided.

In the training of children in whom the eye is growing, when the coats of the eye are much softer than in the adult, he recommends those exercises which cause pressure should be avoided. For instance, the exercise in which the child is prone and raises itself up and down on its hands, with its eyes pointing downwards, should be abolished. The student who takes his exercise intermittenly should particularly avoid those forms which produce increased tension in the eye, such, for instance, as riding up steep hills and bending forward when cycling, using dumb bells, and lifting heavy weights.

Any occupation which involves heavy lifting is not considered suitable for a myopic. It is particularly in those who have sedentary occupations, who are not in fit physical condition, and who have an hereditary tendency to myopia, that these forms of exercises should be avoided.

A Sanitary Washing Fountain

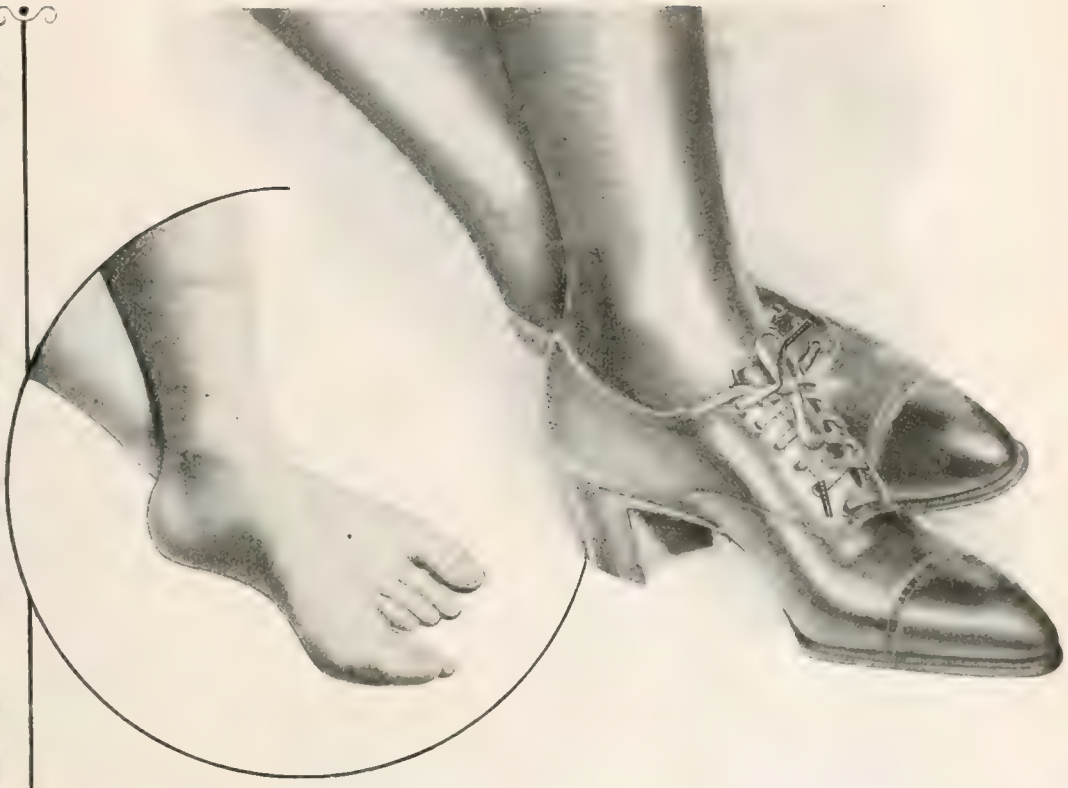
Hygienic, attractive in design, and economical in space and the number accommodated, is this washfountain built of highly polished ground marble and concrete. The water is controlled either by a foot or hand lever with soap containers as part of the construction. The installation is used in railway stations, public buildings, and industries where large numbers must wash in a short time.

Cantilever Stores

Cut this out for reference

Akron—11 Orpheum Arcade
Albany—Hewett's Silk Shop, 15 N. Pearl
Altoona—Bendheim's, 1302 11th Ave
Atlanta—Carlton Shoe & Clo. Co
Auburn & Geneva, N Y—Dusenbury
Austin—Carl H. Mueller
Baltimore—325 No. Charles St.
Battle Creek—Bahlman's Bootery
Bay City—D. Bendall Co
Birmingham—219 North 13th St.
Boston—Jordan Marsh Co.
Bridgeport—W. K. Mollan.
Brooklyn—414 Fulton St
Buffalo—639 Main St
Butte—Hubert Shoe Co
Camden—Curran's, 110 Broadway.
Cedar Rapids—The Killian Co
Charleston—J. F. Condon & Sons
Charlotte—221 Piedmont Bldg
Chicago—4750 Sheridan Rd., Room 214; 30 E. Randolph St., Room 502
Cincinnati—The McAlpin Co
Cleveland—Graner-Powers, 1274 Euclid
Columbia, S. C.—Watson Shoe Co.
Columbus, Miss.—Simon Loeb & Bro.
Dallas—Leon Kahn Shoe Co
Davenport—R. M. Neustadt & Sons
Dayton—The Rike Kumler Co
Denver—224 Foster Bldg
Des Moines—W. L. White Shoe Co
Detroit—T. J. Jackson, 41 E. Adams
Easton—H. Mayer, 427 Northampton
Elizabeth—Gigl's, 1053 Elizabeth Ave.
Elmira—C. W. O'Shea
El Paso—Popular Dry Goods Co
Erie—Weschler Co., 910 State St.
Evanston—North Shore Bootery
Fall River—D. F. Sullivan
Fitchburg—Wm. C. Goodwin, 12 Main
Fort Dodge—Schill & Habenicht
Galveston—Fellman's
Grand Rapids—Herpolsheimer Co.
Hagerstown—Bikle's Shoe Shop.
Harrisburg—Orner's, 24 No. 3d St.
Hartford—86 Pratt St.
Houston—Clayton's, 803 Main St
Huntington, W. Va.—McMahon-Diehl Co.
Indianapolis—L. S. Ayres & Co
Jackson, Mich.—Palmer Co
Jacksonville—Golden's Bootery
Jersey City—Bennett's, 411 Central Ave.
Kansas City, Kan.—Nelson Shoe Co.
Kansas City, Mo.—300 Altman Bldg.
Knoxville—Spence Shoe Co
Lancaster, Pa.—Frey's, 2 E. King St
Lansing—F. N. Arbaugh Co
Lawrence, Mass.—G. H. Woodman
Lexington, Ky.—Denton, Ross, Todd Co.
Little Rock—Poe Shoe Co., 302 Main St.
Los Angeles—505 New Pantages Bldg.
Louisville—Boston Shoe Co
Lowell—The Bon Marche
McKeesport—Wm. F. Sullivan
Milwaukee—Brouwer Shoe Co
Minneapolis—21 Eighth St., South
Mobile—Level Best Shoe Store
Montgomery—Campbell Shoe Co.
Morristown—G. W. Melick
Mt. Vernon, N. Y.—A. J. Rice & Co.
Nashville—J. A. Meadors & Sons
Newark—897 Broad St. (Opp. City Hall)
New Britain—Sloan Bros
New Haven—153 Court St. (2d floor)
New Orleans—109 Baronne St. Rm 200
New Rochelle—Ware's
New York—22 West 39th St.
Norfolk—Ames & Brownley
Oakland—205 Henshaw Bldg
Omaha—1708 Howard St.
Passaic—Kroll's, 37 Lexington Ave
Pawtucket—Evans & Young
Peoria—Lehman Bldg. (Room 203).
Philadelphia—1300 Walnut St
Pittsburgh—The Rosenbaum Co
Plainfield—Fahey's, 234 North St.
Portland, Me.—Palmer Shoe Co.
Poughkeepsie—Louis Schoberger
Providence—The Boston Store
Richmond, Va.—Seymour Sycle.
Rochester—148 East Ave.
Rock Island—Boston Shoe Co
Saginaw—Goeschel Brater Co
St. Louis—516 Arcade Bldg. (Opp. P.O.)
St. Paul—43 E. 5th St. (Frederic Hotel)
Salt Lake City—Walker Bros. Co
San Antonio—Guarantee Shoe Co.
Santa Barbara—Smith's Bootery
San Diego—The Marston Co
San Francisco—Phelan Bldg. (Arcade)
Savannah—Globe Shoe Co
Seattle—Baxter & Baxter
Shreveport—Phelps Shoe Co
Sioux City—The Pelletier Co.
South Bend—Ellsworth Store
Spokane—The Crescent
Springfield, Ill.—A. W. Klaholt
Springfield, Mass.—Forbes & Wallace
Stamford—L. Stielke & Son
Syracuse—136 S. Salina St
Tacoma—255 S. 11th St. (Fidelity Bldg.)
Terre Haute—Otto C. Hornung
Toledo—LaSalle & Koch Co
Topeka—The Pelletier Co
Trenton—H. M. Voorhees & Bro.
Tulsa—Lyons' Shoe Store
Utica—Room 101 Tuster Bldg
Waco—Davis-Smith Booterie
Waltham—Rufus Warren & Son
Washington—1319 F Street
Waterbury—Reid & Hughes Co.
Wheeling—Geo. R. Taylor Co
Wilkes Barre—M. F. Murray
Worcester—J. C. MacInnes Co
Yakima—Kohls Shoe Co
Yonkers—Louis Klein, 22 Main St
York—The Bon Ton
Youngstown—R. McManus Co
Zanesville—J. B. Hunter Co

Agencies in 244 other cities



A flexible shoe for your flexible foot

Nature, in her wisdom, designed your foot arch to flex when you walk. Why restrain it in shoes that are rigid and without natural lines? "The foot is like a cantilever spring," wrote a noted doctor. "The Cantilever is the most comfortable shoe I have ever worn," said a trained nurse; and another woman said, "In Cantilever Shoes I feel as though I were flying."

It is because of the *flexible shank* and *natural lines* of the Cantilever Shoe that you will derive such comfort from it. And because of its graceful appearance and its harmony with this Spring's shoe styles you will see it worn wherever daytime costumes are worn. Fine workmanship, splendid materials and reasonable prices add to make the Cantilever desirable.

The graceful carriage and youthful walk of the Cantilever Woman are the result of natural flexibility. See how she walks when she is not aware of it. Then, as every step, Cantilever Shoes make her feel, as Terpsichore wore the wings of Mercury.

Though you may not be conscious of it, there are few things that spoil a good disposition quicker than shoes that nag you. Nerve strain, leading to backache, headache, and even to pains like those of rheumatism, may be caused by high heels and by shoes that bind and restrict the feet. Many writers on health and beauty subjects are now laying emphasis on the importance of a woman's shoes in respect to her health, trimness, and personal attractiveness.

You were given two marvelously [illegible] feet. At the nearest Cantilever Store, try on a pair of shoes suited to their needs. Keep your feet well and spare yourself the misery that has come to so many women. If wrongly designed shoes have already begun to injure your feet, a change to **Cantilevers will help them.** Weakened muscles will be strengthened by proper exercise, and improved circulation will make you feel better and look better.

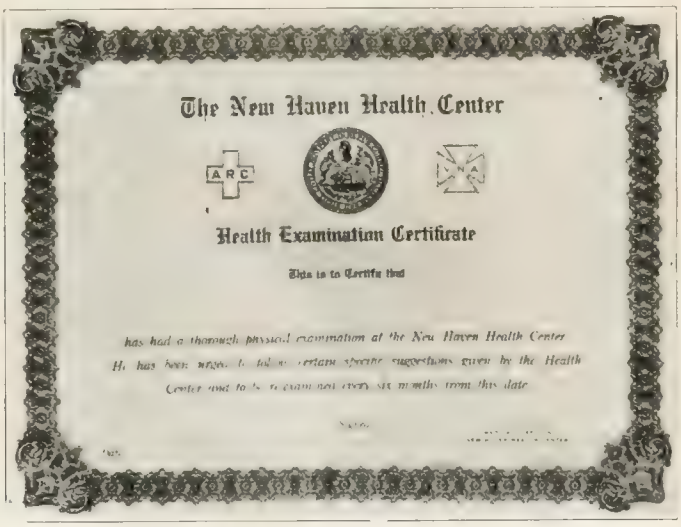
It is one of the listed dealers in your town, such as the [illegible] Musse & Burt [illegible] Avenue Bldg., N. Y., [illegible] tells [illegible] glad

Cantilever Shoe

Endorsed by Women's Colleges, Women's Clubs, Parent-Teacher Associations, Directors of Physical Education, Lecturers, Nurses' Associations, and thousands of users

Health Examinations

The "Listening Post" (medical office) at the Keep Well House of the New Haven Health Center in seeking ways to popularize its physical examinations has recently prepared a certificate, the reproduction of which is shown below. It has been felt that the significance of the thorough physical examination could be more effectively impressed upon individuals if they could carry away a record of the examination. Consequently, an attractive certificate 8x10 inches in orange and black signed by the medical director of the Health Center is now given to individuals who have been thoroughly examined. On the reverse side of the certificate the following personal notes are recorded: (1) The general condition of the individual at the time of the examination; (2) the notation of the specific physical defects; (3) the specific hygienic advice which the individual is urged to follow.


The New Haven Health Center
ARC
Health Examination Certificate
This is to Certify that
has had a thorough physical examination at the New Haven Health Center

Facsimile of health examination certificate furnished by the New Haven Health Center.

We have been gratified to see how favorably the certificate is received, and we believe that it will serve as a reminder to the individual to return periodically for examination. It will also serve to remind him of the findings at the time of the examination, which he is liable to forget unless they are of a serious nature requiring immediate attention.

Popularization of the idea of periodical health examination remains one of the outstanding challenges to public health administrators. One of many methods used in the Keep Well House has been the preparation of a poster calendar, 18x21 inches, printed on a pale blue background with black ink and touches of red. These have been distributed throughout the shops and factories of the district, and have brought to the attention of many for the first time the idea of a health examination.

New Jersey's War on the Mosquito

The Board of Conservation and Development in New Jersey has recommended that one million dollars be appropriated for a five year campaign against the mosquito. The report of the Board, just issued, in arraigning the mosquito as a pest and as a health menace from the Tropics to the Arctic Circle, shows that the mosquito is not a necessary evil, that it readily lends itself to control, and that the incidence of malaria fluctuates with public effort—and public appropriation—for its extermination. The report is a valuable document in the hands of health officers in the figures adduced to show that it is money in the community's pocket to carry on a mosquito campaign, no matter what it costs. The New Jersey Board of Conservation and Development estimates that by clearing the state of mosquitos the value of property would be increased by five hundred million dollars in twenty years.

On March 1 the New Jersey Mosquito Extermination Association held a three days' convention at Atlantic City. The annual meeting of this body is the first sign of Spring in the southern part of the state. The treasurer of the Association calculated that an expenditure of $750,000 would complete the work of which the counties, spending their own money, have made a beginning. Factories, mills, and homes are now standing, he said, upon reclaimed marsh land which a few years ago was considered uninhabitable. Consummation of the work will probably require a round million of dollars, the Board of Conservation and Development maintains, and the job will be done well only when it is done thoroughly, counties cooperating with the state, as in road building. If the Legislature has not been convinced that the public welfare would be served by an appropriation of approximately one million dollars, it is because the rural mind yields but slowly to enlightenment, the country's representatives do not mind mosquitos, and the increased valuation argument is too subtle for them. But the reform is marching on. New Jersey from Lake Marcia, up near Port Jervis, to Cape May Point will some day be free from mosquitos.

The Wisconsin state board of health has appointed Miss Aimee Zillmer of Milwaukee as assistant in education for lecture work in social hygiene and related subjects. Miss Zillmer's last work was with the White-Williams Foundation at Philadelphia.

S. Josephine Baker Honored

International Newsreel.

A dinner has recently been given to Dr. S. Josephine Baker, director of the Division of Child Hygiene, in the Department of Health, New York City, attended by representatives of many organizations and by many prominent individuals, commemorating the completion of twenty years of service by Dr. Baker. Under her administration the Bureau has grown to maintain sixty-eight baby health stations that serve about sixty thousand babies each year and, in round numbers, one million school children come under the care of the doctors and nurses in the public and parochial schools. The outstandingly good work in this field in New York City is largely due to the vision of Dr. Baker, and the extension of the child hygiene movement throughout the country.

This Is a Weak Foot—

A Condition Most Prevalent Among Women

The fashionable types of shoes, pointed-toe hosiery, excessive use of the feet in walking or standing, pregnancy, heavy weight bearing, etc., are responsible for the vast number of cases.

Remove predisposing cause and apply mechanical treatment and corrective foot exercises. It will help you to build a reputation in your locality. These foot troubles are found everywhere.

Successful orthopedists and general practitioners are prescribing

Dr Scholl's
Corrective Foot Appliances

which have now been placed in leading shoe stores and surgical instrument houses throughout the country.

These dealers have also been instructed in the proper method of adjusting appliances to the foot and shoe in accordance with the principles of the inventor and designer, Dr. Wm. M. Scholl.

Write for Pamphlet—"Foot Weakness and Correction for the Physician," and chart of corrective foot exercises. The subject will amaze you.

THE SCHOLL MFG. CO., 213 W. Schiller St., Chicago, Ill.
NEW YORK *TORONTO* *LONDON*

Immunity in Infective Diseases

It is a little more than twenty years since the appearance of Elie Metchnikoff's "L'Immunité dans les maladies infectieuses" (Paris, 1901). The translation from the French by Professor Binnie of the Pathological Department of the University of Cambridge appeared from the Cambridge University Press four years later, and a reprint of this English edition in 1907. Despite the passage of fifteen years since the appearance of the last edition, fifteen years which have been pregnant with important advances in the medical sciences, it is a pleasant task and still apropos of current interests to re-view this book which (in his own words) "sums up the labors of twenty-five years" of one of the most renowned disciples of Louis Pasteur, of one of that noble land who labored by the Master's side and who assisted without stint in the upbuilding of that House in Paris in whose library stands the urn that holds his ashes. It is not rash to assert that in these fifteen years there have been only few contributions in humoral or cellular physiology of importance equal to that contained in "Immunity in Infective Diseases." With the appearance of this volume came the convincing proof (1901) that neither the humoral nor the cellular conceptions of the immune reactions were, in themselves, sufficient to account for the phenomena which had been observed, that there was no inherent conflict between the two and, indeed, that the two supported and were complementary to each other. The work of twenty years in the grandest files of medical times has not carried us far beyond that point. There is still as good a case for Metchnikoff as for Ehrlich; immunology is still (as a distinguished immunologist once said) "a science of *phenomena* not of *facts*."

The manner in which the subject matter of this volume is treated is symbolic of the author's own progress. The basis of the work is comparative zoology and comparative physiology. The simplicity and the clarity with which Metchnikoff recites the story of how his earliest observations on intracellular digestion—made when studying the comparative embryology and physiology of the digestive organs—led finally to the epoch-making contribution, phagocytic action and the theory of cellular immunity, are truly charming. Immunity reactions are set forth here as the diverse reactions of all living things. The immunity responses of unicellular organisms (Chapter I) and of multicellular plants (Chapter II) are discussed before immunity in the animal kingdom (Chapter III). Then comes the treatment of the comparative physiology of "Resorption of the Formed Elements" (Chapter IV) and "Resorption of Albuminoid Fluids" (Chapter V). Then follow ten fascinating chapters on the facts and the mechanisms of natural and acquired immunity against microorganisms and their toxins. Chapter XVI is an historical sketch of our knowledge of immunity, and Chapter XVII a summary of the whole. The typography and make-up of the volume leave nothing to be desired. They are up to the highest standards of any press. The rhetoric and grammer of the original French edition have not suffered by the able translation of Professor Binnie.

It is not often that a volume on an experimental thesis bears the brunt of time as this one of Metchnikoff's. When reading it we smile sometimes for the many alleged facts or conceptions which have been denied or disproved since the opening of the twentieth century. We also smile—often, too—with wonderment at the predictions of discoveries yet to come and which in retrospect we know did come along the lines of investigation indicated by this able Russian. Indeed one is reminded of a similarity to the fulfillment which came so hard upon the heels of another Russian's predictions, Mendeléeff's following the announcement of the periodic system of the elements. It was a long cry from studies upon *phagocytella* and intracellular digestion to the matured concepts of phagocytosis and artificial immunity. But Metchnikoff was a toiler and great was his perseverance. His book is an absorbing, interesting encyclopedia of information to the casual reader, a mine to the student of immune reactions, and an inspiration to all who thumb the pages.—I. S. FALK.

University Press, Cambridge, 1922.

Clinical Tuberculosis

Rather a vast project was undertaken in "Clinical Tuberculosis," by F. M. Pottenger and the second edition of the two volume work brings up to date the material presented in the first. Much of the "new" of the second edition is based on personal observations, a vast clinical experience giving the author an unusual opportunity for testing out personal ideas. The discussion of the various reactions has been modified to conform to the views expressed by Pottenger in another book. The discussion is at times highly theoretical and difficult to follow. The book constitutes a valuable reference.

C. V. Mosby Company, St. Louis, 1922.

New Cancer Research Laboratory

Keystone View Company, Inc.

Huntington Memorial Hospital where cancer research work and optic wave study is being carried on. A new laboratory has been erected adjoining the hospital.

The effect of the yeast treatment on uric acid excretion

An interesting investigation of the effect of fresh yeast on uric acid excretion in normal persons has been recently conducted and reported upon. (See Journal of Laboratory and Clinical Medicine, May, 1922.)

THE yeast cakes were eaten before meals by two men and two women subjects. One ate 3 cakes a day for ten days. Another ate 3 cakes for six days, then 6 cakes for four days; the third ate 3 cakes for three days, 6 cakes for three days and 9 cakes for four days; and the fourth ate 3 cakes for three days, 6 cakes for three days, 9 cakes for three days and 15 cakes for one day.

The daily diet was similar to the conventional "purine free" diet based on eggs, milk and cheese except that it was found desirable to include a vegetable salad in the noon meal. The same food was eaten every day. Approximately forty calories per kilo were provided and the weight of the subjects remained constant throughout.

The uric acid in the urine was determined by the colorimetric method of Folin and Wu. Hydrogen ion concentration was done by the colorimetric method using methyl red and thymol blue as indicators. Total nitrogen was determined by the Kjeldahl method.

The experiment was divided into four periods—a fore period when no yeast was eaten—a yeast period—and two after-periods when no yeast was eaten. "There was no significant change in the values for uric acid in any of the subjects throughout the experiment," comments the scientist.

This result seems remarkable when one considers that for certain periods three of the subjects ate twice the therapeutic dose of yeast, two ate three times the dose and one ate five times the dose.

The summary states that "there is no evidence of an increase in uric acid excretion following the ingestion of the recommended therapeutic dose of live yeast."

The Fleischmann Company feel that this investigation proves conclusively that the ingestion of yeast does not increase uric acid excretion, and that, therefore, the advantages of yeast therapy are safely open to the nephritic and to those suffering from gout.

Send for the recently published brochure on the manufacture, chemistry, physiology and therapy of yeast. This book is distributed free to physiological chemists, physicians and hospitals. Address [illegible] Dept. Y-8, 701 Washington St., New York City.

Traveling Public Assured Safe Water

Travelers on ships which ply the Great Lakes will be protected against dangerous drinking water from now on under an extension of the national laws whereby the state department of health will cooperate with the United States Public Health Service in maintaining certified water on ships of the same standard as that now provided on railway trains.

Water used on lake vessels for drinking or cooking purposes, according to the regulations, must be obtained either on shore from a source approved by the United States Public Health Service and inspected regularly by the state department of health, or if not obtained ashore the water must be treated aboard ship by approved methods.

All water piping systems on ships will be required to be so arranged that no connections can be made between drinking water pipes and pipes for any other water system. Taps on ships yielding water not intended for drinking purposes will be marked by signs stating that the water is unfit to drink.

People may be assured that drinking water supplied on trains in Michigan is safe, declare officials of the State Department of Health, since rigid inspection is maintained of the 127 separate sources of supply for interstate carriers. A full time employee of the Bureau of Sanitary Engineering makes the inspections at stated intervals.

Research Work in Ventilation

Tunnel ventilation in general and the Hudson tunnel ventilation in particular have developed an interesting body of facts in connection with underground air requirements states Robert G. Skerrett, writing for the *Compressed Air Magazine* of April, 1922. The difficulties in the way of blowing fresh air through the viaduct from end to end were overcome by a scheme which would introduce fresh air into each tube through a number of openings leading from a supply duct, and carry off the tainted air by another duct of like character. All the ventilation problems involved were cleared up by practical tests. The research work has just been finished, and supplies information of outstanding value in a number of fields of engineering.

Four lines of inquiry were followed, the first two having to do with the character and quantity of exhaust gases generated by internal combustion engines when running and with the physiological effects of certain components of these gaseous mixtures —particularly carbon monoxid. The purposes of the latter research were to determine how human beings and animals would react when breathing for different intervals an atmosphere polluted with various proportions of carbon monoxid, and the point of safety in such admixtures for persons even of feeble constitutions. Another line of inquiry had to do with the evolution of a type of expansion chamber which would best serve to insure the widest dispersion of fresh air in the neighborhood of the tunnel roadways. Excessive velocities, of course, would need to be avoided. The accepted pattern is so shaped that air issuing from it at a velocity of one thousand feet per minute has no appreciable force five feet away, yet the impulse will carry the air quite to the middle of the driveway.

The road tests revealed the fact that the average volume of carbon monoxid produced is much larger than has previously been computed, a fundamental fact for the development of means to control its admixture with the air. The engineers had estimated that it would not be unsafe for passengers in the tubes to breathe an atmosphere containing three parts of carbon monoxid in ten thousand parts of air, but the physiological experiments at Yale brought out the net result that men, women and children—including infants and invalids—could in perfect safety breathe for an hour an atmosphere admixed with four parts of carbon monoxid. Horses and dogs exhibited a like immunity.

Further experiments were conducted at the Experiment Station of the University of Illinois on the dispersion of air under the structural conditions involved, and at the experimental coal mine at Bruceton, Pa., to determine the relative advantages of delivering the fresh air supply from below. The difference was in favor of upward circulation, and the physiologists found that the absorption of carbon monoxid by the blood is less with the rising movement of air than with the descending movement.

The whole study emphasizes the comprehensiveness of studies involved in problems of ventilation, it shows the necessity of making human welfare a problem of engineering, and incidentally disproves many principles advocated by technical manuals.

Convenient Iodin Container

A convenient iodin container for factories or large industrial establishments. The construction of a shelf just below the top of the bottles prevents the removal of the iodin and applicators from the box.

"With this Treatment I Seldom Write a Death Certificate FOR INFANTILE DIARRHEA"

THE BRITISH MEDICAL JOURNAL SAYS:

"All experience goes to show that Virol is a food of marked value in a great variety of conditions in which adequate nutrition by ordinary means is not easy to secure, including the general range of diseases accompanied by wasting and summer diarrhea."

"I have had most excellent results with Virol; in fact, to my mind it is the only treatment for infantile diarrhea —barley water and Virol, or rice water and Virol. With this treatment I seldom write a death certificate for infantile diarrhea."

Extract from doctor's letter.

DIET IN INFANTILE DIARRHEA

To each half-pint of rice or barley water add one-quarter teaspoonful of Virol. Give one or two ounces of this mixture every two hours. In cases of great prostration add 10 to 15 minims of brandy. When the evacuations indicate that the infection is at an end, sterilized milk can be cautiously added to the Virolised rice or barley water, the milk being substituted for the rice or barley water, dram for dram, until Virolised milk is the sole article of diet. As the child improves the Virol can be gradually increased.

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Incineration as Means of Garbage Disposal

Incinerators have been found to be an efficient as well as a comparatively inexpensive means of disposing of refuse for market houses and large industrial and institutional buildings. William F. Morse, consulting sanitary engineer of Cleveland in *Municipal and County Engineering* has described a simple type of incinerator in practical use.

Incineration is the most satisfactory method of disposing of market house wastes. With a market containing from 100 to 150 stalls, handling every variety of food products, there is a daily accumulation of refuse material of from 10 to 15 cubic yards, weighing approximately 3 to 5 tons.

The incinerator may be built from detailed working drawings by a competent bricklayer who can read plans and follow clearly printed instructions. Though the design may be varied to conform to the architect's plans, the floor space should not be less than 8 ft. by 6 ft. with room on the side or end for stoking and removing ashes. The incinerator is usually connected with the main chimney of the heating plant or with the boiler smoke flue; or if the location is outside the building, there is provided a brick chimney or steel stack with fire brick lining.

The fire-box, floored with heavy cast-iron grates, is charged from the main floor of the building through a chute covered by a fire-clay slab enclosed in a cast iron rotating frame. The interior walls, roof, and connecting flue are of fire brick and the whole construction is braced and stayed by vertical and hoizontal steel beams and angles. The consuming heat may be raised to the highest temperature and maintained indefinitely without injury to the furnace. No fuel other than the refuse itself is required to operate the furnace.

Incinerators are also most successfully used at great railway terminals. In the Hudson Terminal Building, New York City, which has 5,000 daily occupants and a connecting underground railway, there is installed an incinerator designed and built by the author in 1907. The furnace with a capacity of ten tons receives the daily garbage, combustible refuse, floor sweepings, and the refuse from the railway used by thousands of travelers.

At the Bush Terminal Building, South Brooklyn, N. Y., the enormous volume of refuse from the industrial plants housed therein is transformed into steam by the aid of two large incinerators which use no other fuel and operate two 350 h.p. steam boilers, saving an equivalent amount of coal.

The Government makes use of incinerators at various army posts and navy yards. One incinerator has been in use in a certain army post since 1894.

Infant Mortality in New York City

A new emphasis has been placed upon the effectiveness of direct and intensive efforts in the reduction of the infant mortality rate through the publication of "Infant Mortality in New York City" by the International Health Board. The study is based upon data collected in 1915 and 1916 by Ernst Christopher Meyer. The text deals with the material in hand when the study was closed in 1916, but all important tables and graphs have been brought up-to-date.

No other city in the country has been able to show an equally rapid and constant decline in its infant mortality. What is likewise remarkable is the fact that a parallel reduction has taken place in the death rate among children from two to five years of age. That the results attained bear a direct relation to the activities undertaken in child welfare is evidenced graphically by the trend of the congenital disease rate, the movement by groups of diseases, the relation of baby health stations to the decline in diarrheal diseases. Larger movements to include domestic sanitation and personal cleanliness, growing out of the special programs are held to attain the particularized goal of infant welfare, and at the same time to be quicker and more economical than the method of the past in a concentration at the outset on expensive, intensive infant care. A city with a very high infant mortality rate has generally very poor conditions of sanitation, and, in the end, anything less than community effort toward community betterment must be considered inadequate.

Lunches in Tuberculosis Crusade

The Wisconsin Tuberculosis Society has been very active in the advocation of nutritional work in schools as a prophylactic against tuberculosis. As a result of the hot lunch campaign completed recently in Dane county, many schools have installed equipment and will continue the lunches permanently. The campaign was conducted for two weeks in the 240 rural schools of the county under the direction of the county nurses and supervising teachers.

Milk lunches have been introduced into the Waupun schools as a result of the school inspection conducted by Miss Alma Witte, public health nurse.

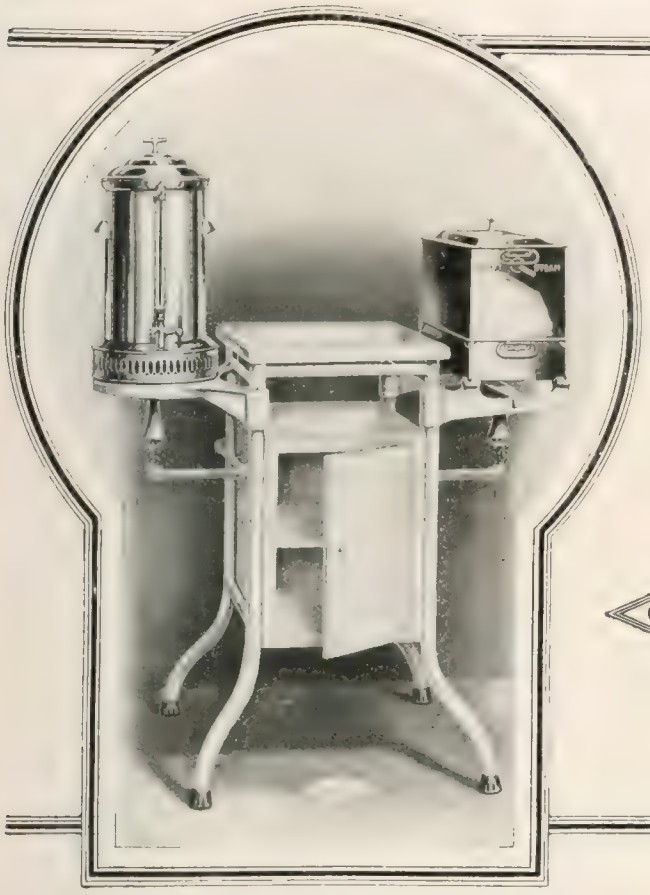
The Exhibitor's Problems

THE movie wins, whether it is deliberately sought out by a pleasure loving public for purposes of recreation, or whether the visual appeal is utilized by educator, scientist, or moralist as the most direct stimulus to action. Not a word of defense for the use of the screen is offered by Gladys and Henry Bollman in "Motion Pictures for Community Needs," for enterprise in that direction has sufficiently demonstrated its efficacy. It does, however, present the most comprehensive analysis of subjects having to do with production that must be mastered by the non-theatrical exhibitor if the motion picture film is to serve him, selection and booking, fields of utility, harmonious settings, program building, and hundreds of questions satisfactorily solved by experts in projection and management which can serve the ends of the community exhibitor.

A list of publications and bibliography (complete to publication date) is presented along with one hundred suitable programs. Questions of equipment and installation, operation and care of films, legal regulations, and types of machines are set forth.

Perhaps the best service to the amateur exhibitor is given in the general analysis of the problem. The general suitability of a picture program depends upon the specific purpose it is to serve. Here as elsewhere success depends upon knowing exactly what is to be accomplished and sticking to it. This involves also an analysis of the audience. The supply of specially adapted pictures should govern their selection, as well as the status of the subject presented, and the temper of the public addressed. Haphazard methods no longer suffice. If visual appeal through motion pictures is to be made, all available service to make that appeal intelligent and intelligible should be utilized.

Henry Holt & Co., New York, 1922.



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Problems in Delinquency

JUVENILE delinquency can be prevented and in the process a large part of adult criminality can be eradicated, asserts Goddard* in "Juvenile Delinquency." Defining delinquency as failure to keep up the requirements of the group, social offenders fall into two large divisions, (1) the feeble-minded who cannot understand reasons for and hence do not develop motives for social behavior; and (2) the psychopathics, who, though they may be able to understand the nature and need of cooperative enterprise, are because of inherent defect unable to control their actions. Penal measures conducted on the principle of retribution, or custodial care, to get the troublesome individual out of the way, merely beg the question of the socially inadequate. If a social behavior is the result of physical or mental defect, the offender is as abnormal on the first offense as when he commits a serious crime. If treatment in such cases is justifiable to all, prevention is more justifiable, and this becomes possible only when the disposition of such cases is made only on the basis of exhaustive analytical study.

Ohio is in a fair way to solve the question through the Bureau of Juvenile Research. Organized in 1912 after a preliminary survey of problem children, the personnel of the Bureau included mental examiners and diagnosticians, psychiatrists to study mental disease, biochemists for the study of physiological processes, physicians for physicial examination and treatment, and other specialists necessary to attack the complex problems that are involved in juvenile delinquency. The work has gradually been extended till in 1920-21 there were ten scientific workers, six clerks and stenographers, and nine caretakers.

On the medical side, while emphasis is placed upon complete treatment for remediable disease and physical defect, intelligent handling is held to depend chiefly upon mental classifications. In a large proportion of cases Goddard is inclined to attach chief importance to congenital syphilis as a causative factor, a condition identified with very typical effects upon conduct as well as mental function.

A statement of results, a summary of findings, and general indications for an effectual program for eradicating juvenile delinquency are outlined in Goddard's book. It is a volume of real value to physicians and public health or social workers, but it would be still more effectual if a volume of this character could be accorded a careful reading on the part of the general public. For the questions it raises are social questions, problems which are still open because they are not understood and faced directly by the group concerned. For the most part the machinery to handle the question is locally available.

The chief opportunity for prevention is through the public schools. Waste of time and money is involved in a system which delegated the problem of the feeble-minded to state institutions at a time when it was thought that a small institution conveniently located would easily take care of all the mental defectives in the state. Social inadequacy is closely allied to mental defect and as such should receive attention in due course through specially adopted educational measures. The first business of our schools is to socialize the child. If they merely seek to impose a given amount of information instead of training him into modes of behavior that are socially adequate, they fail fundamentally to serve the state. It is logical, therefore, that the physically or psychically inadequate child shall be discovered early in his school career and, once discovered, that machinery to prevent delinquency will be applicable there to replace the cumbersome and ineffectual correctives which now are applied through juvenile courts and bureaus of juvenile research.

*Goddard, Henry H.: Juvenile Delinquency, Dodd, Mead & Co., New York, 1922.

Rural Child Welfare

OUR lethargic attitude toward the problems of child life has been brought squarely to our attention again. What sort of a society is it which can through its events of justice defeat justice and reason as we sometimes do with our cumbersome machinery? The endless thought and attention which the National Child Labor Committee has given to the problems of child life make their publications worthy of our most cordial consideration. A recent publication on Rural Child Welfare, a study of conditions in West Virginia made under the direction of Edward N. Clopper, shows us again and again how far we have to go before we accomplish even the minimum of existence.

The primary purpose of child welfare work, Mr. Clopper shows, is to prolong the period of childhood. Success for boys and girls depends first of all on the time element—the certainty of childhood. It is not enough merely to have childhood; it must be made secure to all sorts and kinds of children. Suffering and disease, poverty and crime, are not a part of wholesome child life. Above all, let them play, for play is the means to growth and refreshment. Protective, educative, recreational, and charitable work—on these we must rely to keep the canker of age out of childhood.

We have talked vaguely of the problems of rural life, the position of the child on the farms, and the character of his life but here we find a study of the rural home, its sanitation, the character of food, child labor, rural recreation, dependency, neglect, and delinquency among children. It might be shown for instance that of 183 schools visited 95 or over one half reported their non-attendance to no one. These figures and the cause of non-attendance have been carefully analyzed. Sometimes the children are excused for work, sometimes because of illness, sometimes because of the location of the school.

Probably the most basic of all causes of non-attendance is indifference. Indifference to education, and particularly education expressed in terms of school attendance, is very general and is manifested not only by parents and children but by the whole community, including school people themselves. This problem of indifference and inattention is probably the most fundamental of our difficulties—indifference to health, to child care, to all sorts and kinds of problems.

The following expenditures of various states in health work for rural inhabitants for the year 1920 bear out what we have said: South Carolina spends 16 cents per capita; Kentucky 15 cents; North Carolina, 13 cents; Virginia 10 cents; Mississippi, 9 cents; Alabama, 8 cents; Georgia, 8 cents; Tennessee, 5 cents; and West Virginia 5 cents.

The Macmillan Company, New York, 1922.

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FROM THE FIELD

Columbia University now has a School of Public Health established under the bequest of Joseph R. De Lamar of $777,772,45. While the institute will be primarily for research and for the training of research workers, it will also offer instruction to students of medicine and to others, and will give publicity in popular form to results of scientific investigation in the whole field of public health and hygiene. Dr. Haven Emerson has been appointed Professor of Public Health and Administration.

The Civic Federation of Dallas, Texas, has conducted a study of constructive work for girls, based on replies from Boston, Chicago, Cincinnati, Cleveland, Columbus, Dayton, Fort Wayne, Kansas City, Milwaukee, Minneapolis, Sioux City, and Youngstown. The concensus of opinion seems to be that the best known organizations, the Camp Fire Girls, Girl Scouts, and Girl Reserves of the Y. W. C. A., as well as other organizations, are all doing successful work and fill a need.

"The Housing and Equipment of Kindergartens" is a condensed detailed study published by the Government Printing Office. It contains illustrations of the floor plans of the kindergarten at Wellesley college, views of the Francis W. Parker kindergarten of San Diego, Cal., and of the kindergarten in the State Normal School, Superior, Wis. Minimum and adequate lists for kindergartens of thirty children are published together with their costs.

A new publication which made its first appearance in May is the *Archives of Medical Hydrology*, the journal of the International Society of Medical Hydrology, published in London. Editorial secretaries are C. W. Buckley, M.D., Buxton, England, and Paul Ferreyrolles, M.D., La-Bourboule, France. Many of the articles are published in both French and English. Original articles have been contributed by Leonard Hill, Alois Strasser, R. Wybauw, and others.

National Cancer Week will be held from November 12 to 18.

The personnel of mine-rescue car No. 6 of the Bureau of Mines has recently given first aid training to employees of lead mines and smelters at Flat River, St. Francois, and Desloge, Mo. The crew of rescue car No. 7 has trained employees of the Barnsdall Zinc Company and the Chanute Spelter Company in the Joplin, Mo. district. Car No. 9 recently completed training in the Butte, Montana, district and proceeded to the Coeur d'Alene district of Idaho. First aid, mine rescue, and allied safety work has been done by car No. 10 on the Mesabi and Vermillion iron ranges of Minnesota. Jesse Henson, station foreman at the Wilkes-Barre, Pa., safety station of the Bureau of Mines, recently gave first aid training to employees of the New Jersey Zinc Company, Franklin, N. J.

The San Francisco Board of Health budget for the coming fiscal year has been submitted and totals $4,000,000. This includes $15,000 for radium, $11,000 for a building to house women discharged from state institutions, $1,500,000 for new buildings at the Relief Home, and $500,000 for a new board of health building.

The object of a new investigation to be undertaken by the United States Bureau of Mines in the Minnesota iron range district is to study the physiological effects upon miners of underground conditions, such as high temperature, humidity, gas and dust, and to make physical examinations to obtain any evidence of miners' phthisis (silicosis) among the miners. F. V. Meriwether, surgeon, has been assigned to the investigation, which will probably consume the next six months.

The committee of the French Academy of Medicine, appointed by the Academy to make a study of the reform needed in the secondary education system of France, has made the following recommendations: Limitation of the daily amount of time to be spent in study, to eight hours; organization in high schools of games and manual training in addition to physical education proper; limitations of classes to 30 pupils and grading classes according to intelligence; lightening and simplifying the curriculum; extending the duties of the school physician to cover all matters relating to school hygiene; and the keeping of health records for each pupil.

The motorized child health center, known as the Child Welfare Special, recently built for the Wisconsin state board of health, toured Rock County in April and Grant county in May, giving physical examinations for infants and pre-school children. Other counties on this year's schedule are Sheboygan, Manitowoc, Oconto, Oneida, Bayfield, Portage, Monroe, and Juneau. The pediatric work is done by Dr. Blanche Horner-Rivers, formerly in similar work in Mississippi. Mrs. Johanna Clark, Fort Atkinson, Wis., is nurse assistant.

Carbon tetrachlorid, a cheap chemical commonly used as a clothes cleaner, seems to be a cure for hookworm in human beings, according to recent reports from the Fiji Islands and Ceylon covering thousands of cases showing practically 100 per cent successes. The discovery of the efficacy of the drug in removing these parasites was made by Dr. Maurice C. Hall of the United States Department of Agriculture. Twelve thousand natives of the Fiji Islands, according to a telegraphic report recently received in London, have been successfully treated by the same method, a single dose removing all these parasites from 90 per cent of the patients and at least 98 per cent of them from all persons treated. This is the most extensive test of the chemical yet made on human beings.

The Eleventh Annual Congress of the National Safety Council will be held in Detroit, Mich., August 28-September 1: Many special features of interest are added this year; noted experts in safety and related subjects will address the meetings; a safety exhibit will be held; new safety motion pictures will be shown. An opportunity will be afforded to visit the plant of the Ford Motor Company, employing 46,000 men and turning out 5,000 cars daily.

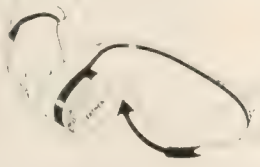
The Wisconsin Industrial Commission has ruled that tuberculosis acquired as a result of occupational duty is compensable under the "occupational disease amendment" enacted by the 1919 Legislature. The case was that of a "wet grinder" in a factory who inhaled dust and fine particles until tuberculosis developed.

4 MONTHS' RESULTS

A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

GROUND GRIPPER
WALKING SHOES

She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.



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The growing interest among industrial executives in literature concerning the conservation of vision is shown by the report of the National Committee for the Prevention of Blindness by the statement that more than 3,400 sets of industrial eye accident posters were distributed during the last year, and by the fact that the second edition of the Committee's Bulletin No. 12, a volume of 145 pages devoted entirely to eye hazards in industrial occupations, was exhausted before the close of the year. This bulletin containing reports of typical cases and recommendations for safe practice is now being revised for publication in the Fall.

The Health Service, New York County Chapter American Red Cross, has issued a report giving results of the physical and mental examinations of over 1,300 N. Y. school children. One thousand children of pre-school age were made fit to enter school at the instance of the Committee on Education of the Civic Club, and with the cooperation of the New York City Department of Health and Education, the New York State Association of Consulting Psychologists.

Lee K. Frankel of New York City sailed for Europe, June 20, as head of the executive committee of the American Jewish Relief Commission to visit Jewish centers in order to determine the best way in which the $18,000,000 collected in this country may be spent.

The Harvard Medical Commission which instituted a five year course of study into the causes and treatment of infantile paralysis, recently made a report of progress. The commission has two thousand actual cases under its supervision and is at the present time treating more than a thousand. The fundamental fact established is that only 50 per cent of the infantile paralysis cases are accompanied by paralysis. The after treatment of the disease is based on "muscle training."

H. Gray, M.D., of Boston has an article in the May number of the *American Journal of Diseases of Children* dealing with the sitting-height and stem-length of private school boys. The children studied are of American birth, of pure American stock; they are drawn from a well nourished class. One hundred fourteen boys were studied.

The Long Island Medical Journal publishes an article by Harris Moak, M.D., Brooklyn, on "Raw Milk in Relation to Nutrition," being an account of the work in the milk commission of the Medical Society of the County of Kings. The requirements for certified milk are set forth in the paper.

"Office Administration for Organizations Supervising the Health of Mothers, Infants, and Children of Pre-school Age with Special Reference to Public Health Nursing Agencies," by Estelle B. Hunter, U. S. Children's Bureau Publication No. 101, embodies the experience of members of the bureau's staff whose services were loaned for studies and consultations, and the results of a study of methods used by 200 nursing agencies in both large and small communities. Among the subjects with which it deals are: The principles and methods of staff organization; selection and training of employees; office location and arrangement; selection of office furniture, equipment, and supplies; planning case record systems; filing, financial administration; and publicity methods. It includes a bibliography and an appendix giving details of four record systems in use by different types of nursing organizations.

The Commonhealth, published by the Massachusetts Department of Public Health, devotes its March-April issue to mental hygiene. It contains articles on various phases of the subject by Drs. Harry C. Solomon, Donald Gregg, Abraham Myerson, William Healy, D. A. Thom, A. Warren Stearns, and George K. Pratt. The issue also contains a list of health plays and the organizations from which they may be obtained.

A standard smoke ordinance to apply to all cities of the country will be framed by the engineering profession according to announcement of the American Society of Mechanical Engineers. The committee to carry on the work nationally consists of O. P. Hood, chief mechanical engineer of the United States Bureau of Mines as chairman, Henry Kreisinger, P. J. Dougherty, Lloyd R. Stowe, Everett L. Aillard, and Osborn Monnett.

Harrison G. Dyar, Custodian of Lepidoptera, United States National Museum, is the author of a bulletin "The Mosquitoes of the United States," published by the Government Printing Office, Washington.

The section on Pediatrics of the Associated Out-Patient Clinics which in 1914 adopted standards for Class A, B, and C clinics was reorganized on May 10, 1922, with the following officers: Chairman, Robert H. Dennett, M.D.; vice chairman, William P. St. Lawrence, M.D.; executive secretary, Gertrude E. Sturges, M.D.; executive committee: Murray Bass, M.D., Stafford McLean, M.D., Marshall C. Pease, Jr., M.D., Mark S. Reuben, M.D., Frank Howard Richardson, M.D., Louis C. Schroeder, M.D., Charles Hendee Smith, M.D., and the officers.

In a recent report presented to the Conseil Supérieur d'Hygiene Publique de France by a special committee on the subject of the use of white lead in industry, the investigators point out that the restrictions laid down by the International Labor Conference at Geneva fall short of the legislation already adopted in France. They urge that Article 79 of the French Labor Code be extended to include painting of all sorts of vehicles.

The Bureau of Children of the Pennsylvania Department of Public Health is making a study of the services rendered by various agencies to children, the information to be recorded and filed in Harrisburg. A representative state conference will be called to determine minimum standards upon the completion of the work. The staff is composed of trained workers in the various fields of child welfare.

One hundred thousand women and girls in New York City have banded together to launch a campaign to secure a center and clubhouse for wage-earning women. Mrs. Willard Straight is chairman of the committee of one hundred who will help raise the $50,000. The clubhouse is to provide a meeting place for wives of working men. The plans of the new house, which is to be located somewhere between Twenty-third and Forty-second streets not further west than Seventh avenue, including an auditorium, rooms for committee meetings, classes, and union gatherings a cafeteria, library, and other facilities.

In cooperation with the New York State Department of Health, New York University and Bellevue Hospital Medical College will give a correspondence course in public health nursing open to all registered nurses beginning September 5, 1922.

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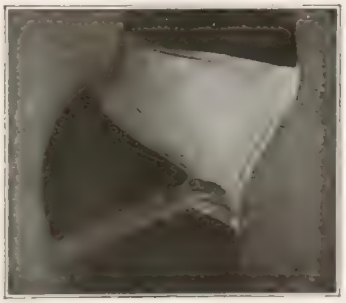

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The New York City Board of Health hopes to immunize from diphtheria every child in the city between the ages of six months and six years before the opening of the schools in the fall. The work has been begun under the direction of Dr. Abraham Zingher of the Willard Parker Hospital. Natural immunity will be determined by the Schick test and those who fail to pass will be inoculated with the toxin-antitoxin A giant educational campaign is now being conducted in New York City in an effort to reach the parents of every child.

Osteopathy is to be tested at the Peter Bent Brigham Hospital, Boston, under the auspices of the Massachusetts Medical Society and the Harvard Medical School.

The Maternity Center Association of New York plans to distribute authoritative information on prenatal care among 100,000 mothers in the United States in an effort to save more than 200,000 lives.

The National Health Council, Washington, D. C., has issued a mimeographed report on the Bureau of Animal Industry setting forth the legal authority, history and development of the Bureau, its organization, personnel, appropriations, and cooperation with other agencies. The pamphlet is the eighth in a series issued by the Council. It is planned in the near future to combine all of these reports in a single printed pamphlet, thus offering for the first time correlated and accurate information concerning the public health work of the United States Government.

Oct. 16 to 21 has been decided upon as "Management Week" by the American Society of Mechanical Engineers to stimulate interest in solving the problem of management in industry. Meetings will be held by engineers in all sections of the country. The Society of Industrial Engineers of which Professor Joseph N. Roe, head of the Department of Industrial Engineering of New York University is president, and the Taylor Society will co-operate.

A life insurance corporation to furnish insurance at cost to clergymen and certain lay workers of the Protestant Episcopal Church is being formed by men prominent in the church, including Bishop William T. Manning, Bishop William Lawrence of Massachusetts, and J. P. Morgan. The new corporation, the formation of which has been announced in legal advertisements, is to be known as the Church Life Insurance Corporation. It will be incorporated in New York state with a capital of $150,000.

The insurance plan is a development of the work of the Church Pension Fund, organized in 1917 to provide pensions for retired and disabled clergymen and their families. The fund has $14,000,000 in hand and $10,000,000 more promised. The insurance plan is an addition to the pension system and not a substitute for it. The Church Pension Fund will provide temporarily the $150,000 capital of the insurance corporation.

That federal protection must be restored to American children through amendment to the Constitution and the passage by Congress of another child labor law and that any further attempts to secure federal legislation without a constitutional amendment would be folly now that the U. S. Supreme Court has successively found two federal child labor laws invalid on constitutional grounds was the statement of Owen R. Lovejoy before the Seventeenth National Conference on Child Labor held in Providence, June 27.

Invitations to send delegates to the World's Dairy Congress, to be held in the Fall of 1923, have just been sent by the United States to the Governments of about fifty countries. The United States Department of Agriculture is cooperating with the World's Dairy Congress Association and many department men are doing active work on committees in making preparations. The place of meeting has not yet been selected. Eminent authorities from all parts of the world will take part in the program, which is designed to touch on every phase of the industry from production to consumption that will be of interest to the people of many countries.

Dr. Alec N. Thomson has recently joined the staff of the Committee on Dispensary Development of the United Hospital Fund. Dr. Thomson was chiefly responsible for the organization of the urological pay clinic in the Brooklyn Hospital in 1914 and served with Colonel William F. Snow in venereal disease control both in this country and abroad. He still retains his connection as advising member of the department of medical activities, American Social Hygiene Association.

The need for physical training for young people is at present being widely discussed in Germany. A bill has been proposed requiring public and private athletic societies to organize sports for boys and girls and to make participation in them compulsory. Supervision of sports by state physicians has been suggested. Health centers for examinations and consultations to promote hygiene in sports have been established by private effort in Berlin, Hanover, and Hamburg, and centers in other cities are soon to be opened.

The Metropolitan Life Insurance Company is issuing to its industrial policy holders a layette pattern designed by Dr. S. Josephine Baker, Director of the Bureau of Child Hygiene, New York City Department of Health. The patterns are unique in that all the garments open all the way down the front. The measurements are such that the clothes can be worn by the baby for a year. A limited number are being distributed to child welfare and maternity centers.

The Water Works Manufacturing Association has elected the following officers: President, Edgar J. Buttenheim, *The American City;* vice-president, Charles R. Wood, R. D. Wood & Company, Philadelphia; secretary, John A. Kienle, Mathieson Alkali Works, Inc., New York City; treasurer, Dennis O'Brien, A. P. Smith Manufacturing Company, East Orange, N. J.

The story of Pennsylvania's Bureau of Municipalities in the State Department of Internal Affairs and the aid it gives to cities is told in *The American City* by James F. Woodward, Secretary of Internal Affairs of Pennsylvania. The bureau maintains a trained corps of municipal experts to extend free aid to the municipalities within its boundaries. The help consists of furnishing plans for playgrounds, widening streets, etc., as well as statistics dealing with fire, police, water departments, appropriations for parks, sewerage systems, street paving and garbage.

New Haven industries are being visited by high school boys to inform themselves as to a choice of a vocation. In order to facilitate the trips, the Chamber of Commerce has sent a questionnaire to each of the industries asking that talks be given explaining the industry.

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The Disposal of Human Waste

Polluted streams and stinking hill slopes infested with rats and dipterous larvae are more than a political crime, states *The Lancet* in discussing two experiments designed to solve the problem connected with the loss of nitrogen which should be returned to the soil, but which constitutes waste in our present methods of disposing of human rejections. A local enterprise in the nature of biological husbandry has been undertaken at Sheffield, England.

The first of two experiments concerns the rapid disposal of mixed sewage so as to retain its fertilizing value in concentrated solid form, while the effluent is discharged clear and bright into the small river whose name is known only in the locality. Anaerobic processes by which mixed sewage is rapidly liquefied in so-called septic tanks have been found impossible and purification has been undertaken by mechanically increasing the oxygen content of the sewage, compressed air being brought to bear on a mixture of sewage and bacterial sludge by means of perforated pipes and porous diffusers. The original experiments at Manchester proved this to be possible, and at Sheffield the process has been simplified by doing away with the compressed air machinery and aerating the sludge by means of churning with paddles.

A concrete canal four feet wide, four feet deep, and three-fourths of a mile wide contains the bacterial sludge kept in a state of continuous circulation at the rate of about one and one-half feet per second by eighteen paddle wheels. In order to save space and make it possible for all the paddles to be driven by one engine, the canal is wound back and forth on itself, the double curves serving to produce eddies which conduce still further to aeration and complete mixture. When first put into use the canal contains just water, plus sufficient bacterial sludge—some 30 per cent of the total volume—collected from the existing filter beds of the older system. When the sludge has matured—that is to say, when the proper bacterial flora has developed—raw sewage is let into the canal at one point and mixes with the sludge during its three-quarter mile lap, the excess continually escaping over a wire situated just before the lap is completed, and in a wider part of the canal, where, the flow being slower, the sludge has partly settled to the bottom. This overflow is then allowed to deposit the flocculent sludge completely in settling tanks and can then be immediately discharged into the river. The effluent is sparkling and gives ocular evidence of purity by the green algae which line the channel. Sufficient sludge is pumped back from the settling tank to replenish the circulating system, the remained flowing away into a well where it can be dried and distributed at leisure. The sludge is quite inoffensive, the whole installation having less odor than a duck pond, and the process is continuous, year in and year out. One unit deals with a half million gallons of sewage daily in dry weather, increasing to over a million gallons in wet periods, for a population of 22,000, and Sheffield is now converting the rest of its disposal works, expecting to save in running expenses, to set free for other purposes five-sixths of its present filter-bed system, to obtain the market value for every part per cent of nitrogen in the dried sludge, and, last, but not least, to purge its hygienic conscience. A city starting its sewage disposal on these lines may do so at half the capital cost of the older system.

House refuse has hitherto been disposed of in Sheffield as elsewhere by dumping and incineration, and now the third alternative of salvage has passed the experimental stage. It has been fully demonstrated that salvage can replace indiscriminate destruction without harm to the health of the workers and without destroying the amenities of the neighborhood. Public health is well served by such demonstrations.

Alter Public Health Curricula

As a result of the first investigation of all examining bodies granting degrees or diplomas in public health in Great Britain and Ireland for something like twenty-seven years, Dr. R. Bruce Low reports on the conditions found and on the recommendations of the General Medical Council for systematic instruction and examination in a number of fresh subjects not formerly included in the curriculum, such, for instance, as the administrative control of tuberculosis, venereal diseases, maternity and child welfare, medical inspection of school children, medical entomology and parasitology.

The *Lancet* gives the details of the proposed alterations as follows:

There would be required for Part I, 180 hours in bacteriology (150 in practical laboratory work), and ninety hours in chemistry and physics (70 in the laboratory). Parasitology and entomology would be specifically included with bacteriology. For Part II there would be demanded three months' attendance at a fever hospital, with thirty attendances not less than twice a week; and six months' practical work (which could not be reduced) with a M.O.H. on at least sixty days of three hours each, the instruction to include maternity and child welfare, school medical service, venereal disease service, tuberculosis service, industrial hygiene, and the inspection and control of meat, milk, and other food. There would also be required instruction from approved teachers extending over not less than one hundred hours in the principles of public health and sanitation (30), epidemiology (20), sanitary law and administration (20), sanitary construction and planning (12), vital statistics (10), and mateorology and climatology (8).

Massachusetts Poor Relief

Those who are active in the fields of charitable relief often forget the struggles which have preceded the laws of the movement. They are so engrossed in the immediate problem of relief that they have neither time nor effort to give to a study or survey of that which has preceded and that which follows. It is only by intensive study of what has been and what will be that we can effectuate our efforts.

Robert W. Kelso's "History of Public Poor Relief in Massachusetts" from 1620-1920 covers three hundred years of almsgiving showing defects and advances, progress and delays. We cannot here trace the rise of a consciousness on the part of society, of a responsibility towards its dependent groups, the development of a system operating in Massachusetts which decentralizes the administration of public poor relief by leaving it to the smallest unit of government, the town, but which centralizes the development of general policy—the social program—in the State government.

As Kelso points out, this system as it now stands is essentially remedial and not preventive; it follows after the fact of developing but does not forestall its development. Public relief which seeks only to relieve distress ends by creating pauperism. If pauperism is due in the greatest measure to the lack of mental capacity in the individual to support himself and his dependents, to relieve him may be to perpetuate and propagate the same thing. Kelso concludes:

Under any form of government the utmost to be expected of the individual in the long run is self-interest decently pursued. Let this self-interest be taken for granted and self-support required by all means within the power of the normal citizen.

Houghton-Mifflin Company, Boston, 1922.

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The Play Movement in the United States

We think of recreation and play in a rather loose and undefined sense until we stop to consider its social significance and importance. Dr. C. E. Bainwater has recently published a report on "The Play Movement in the United States" in which the term "Play" is defined and the historical development of the movement for organized play traced. Play is used here as a "mode of human behavior, either individual or collective, involving pleasurable activity of any kind not undertaken for the sake of a reward beyond itself and performed during any age period of the individual, the particular action being determined at a given time by the somatic structure and social attitudes of the agent in conjunction with the life of the group or groups of which he is a member."

Until the last half of the Nineteenth Century the children of the United States possessed a richer play tradition than that of any other civilized country, but the lax attitude of the public toward child play, the rapid urbanization, the influx of foreigners and the increased isolation of rural communities had a distinct tendency to break down our inheritance of play in child as well as adult life. The creation of American folk music, folk dances, and folk games ceased with the decline of village and social life. Husking bees, spelling matches, and singing schools in which everyone participated were abandoned, leisure pursuits became commercialized, and participants were transformed into spectators. We see the first realization of the importance of new participation in recreational activities in the presence of sand gardens for children, then the introduction of gymnasiums, model playgrounds, small parks, recreational centers, civic art and welfare, which finally broadened into the community center as a medium through which the members of the community get together and truly become members of the community welfare, prosperity and stability.

From the survey of developments which Dr. Rainwater has made it is evident that provision for play is not only an urban but a rural and national problem occasioned by social maladjustments arising from various causes and culminating in attempts to make adjustments to the social situation everywhere. It has started with provision for children and has spread to include adults and from philanthropic to community support, but there was little if any interest on the part of the majority of people in providing facilities for play. The enactment of state mandatory legislation opened the way for a new concept as shown in the general revival of festivals where folk dances and open air performances with hundreds of participants. The aim of the festivals should be to involve the people in self-amusement and self-expression. The festival should be the greatest and most characteristic form of democratic art. It should interpret the ideals of the people to themselves. It should stimulate the creative energies of the people, and bring forth the latent imagination and poetry which is in them.

The supervision of street play is an interesting development. In the earlier stages of the play interest, the attempt was made to keep the children off the street. The attempt now is that the play of children and adults on certain streets in congested areas is directed and organized when other facilities are lacking or are too few. Special games and activities have been adapted to the so-called play zone. The provision of camps outside the city limits under municipal control and support has developed to a place where they may be open most of the year. Finally, we find the attempt to define standards, to bring about the social utilization of all leisure through the provision of opportunities for participation by all ages of people in behavior that is both personally developmental and socially constructive.

University of Chicago Press, Chicago, 1922.

Couch's Dictionary of Chemical Terms

The "Dictionary of Chemical Terms" by James F. Couch, chemist, Bureau of Animal Industry, United States Department of Agriculture, will be found very useful to chemists and other students of natural sciences. The definitions are clear, concise, and up to date.

D. Van Nostrand Company, New York, 1920.

Park Health Moving Pictures

The parks of Detroit are carrying under the guise of a summer recreational activity a health educational enterprise of moment. By the time the summer is over every park in the city will be visited by three moving picture films on health subjects supplied by the Detroit Tuberculosis Society. By means of an automobile carrying a moving picture machine operated from the generator of the car it has been possible to present "Jinks," an animated cartoon on health, "Swat the Fly," a fly film, and "The White Bottle," a nutrition film showing the value of milk. It is believed that in this way a great many people will be reached with health instruction who could not be reached in any other way. The parks are thronged at night with people seeking fresh air and coolness. In the above way, the health instruction will be brought to them in an interesting form and the importance of individual cooperation emphasized.

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Psychoanalysis and the Drama

A thesis, valuable either as a literary analysis of several current plays or as an exposition of certain hidden processes of the mind underlying human conduct and pointing the way to a satisfactory resolution through play-going, is brought out by Smith Ely Jelliffe, M.D., and Louise Brink, A.B., in "Psychoanalysis and the Drama." The dramatic power of the play lies in its conflict of psychic forces. Underlying motives are worked out to their logical conclusion, and because the tragedies of the drama are those of actual life, they afford a better acquaintance with and a safe outlet for the vast emotional life, the suppression of which so often causes mental and physical disaster in everyday life. Unsocial, unproductive forms of behavior are witnessed, acknowledged and thereby in the subjects themselves made subject to control. The functions of the drama are not merely recreational, nor even cultural and its survival through the centuries does not lie merely in the fact that it affords amusement and recreation.

Dramas presented upon the stage in recent years are analyzed as embodying given psychological denouement in chapters on: "Magic" and the Unconscious; Visions of the Future; Phantasy Compensation Through Dreams; The Meeting of the Extremes; Compulsion and Freedom; The National Path of Sublimation; The Healing Function of the Dream; The Destruction Wrought Through Hate. Whether the drama is to be utilized as a therapeutic remedy by physicians or as a means of self-examination by the public, the book is recommended as interesting reading.

Nervous and Mental Disease Publishing Company, New York, 1922.

Principles of Personnel Administration

The problem of securing and maintaining an effective personnel is one which confronts any executive. The personnel problems of the Federal and public service present many factors technical in character, not merely the selection of general principles but in determining the character of the organization and procedure which will put these principles into execution, the tests to be used in selecting new employees, their classification as to efficiency, etc. Arthur W. Proctor in his "Principles of Public Personnel Administration" published as one of a series covering the principles of administration of the Institute for Government Research, has undertaken to trace and develop this new topic for discussion. The author briefly describes existing conditions and remedial measures are proposed. The discussion is limited to employment as it is carried on by civil service commissions in the national government and local governments.

D. Appleton & Co., New York, 1921.

English Public Health

In this day of over-production of medical books in general, and of books on Infant Welfare in particular, it is refreshing to find a book that actually fills a gap in the literature. Such a work is the "Story of English Public Health," by Sir Malcolm Morris. It gives a historical resumé of the subject of public health in England and calls attention to problems that have as yet not been solved. It is too bad the author limited his work to English public health. There is a distinct need in medical literature for a book on the development of public health in general, and a comparative study on the future needs of public health in various countries.

Funk & Wagnalls Co., New York.

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Food and Its Relation to Bodily Health*

By H. C. SHERMAN, Professor of Food Chemistry, Columbia University, New York City.

FIFTEEN or twenty years ago a paper on the subject of food and health would almost certainly have dealt chiefly with questions relating to disease. Students of health were then interested in food largely as a possible carrier of infection or deleterious substances either added as adulterants or produced by deterioration of the foodstuffs. The Federal Food and Drugs Act, in which for the first time the general pure food problem was attacked on broad lines and on a national scale, became a law sixteen years ago. In many states and cities, as for instance in Providence, under the able and scholarly leadership of Dr. Charles V. Chapin, excellent work in the sanitation of the food supply had already been started under local laws and ordinances. With the passage and enforcement of the Federal Food Law, such work became nation-wide, and effective coordination of the activities of state and city health officials and food inspectors was greatly facilitated and became much more broadly effective.

Not only is the general food supply now efficiently policed from the sanitary standpoint, but to an even greater extent has the general safety of the food supply been enhanced by the application of sanitary science in and by the food industries, largely under the constructive guidance of the United States Department of Agriculture and the state agricultural colleges and experiment stations on the one hand and the health authorities of our states and cities on the other. So effectively has the science of sanitation been applied in the production, handling, and inspection of food in recent years that in general the consumer and social worker may now safely assume that food products offered for sale will not contain anything directly deleterious to health.

At the same time that the development of the science of sanitation and food legislation and inspection have largely relieved us from anxiety as to the safety of our food supply, the growth of our knowledge of nutrition has made it quite plain that a freely chosen food supply, adequate both to please the palate and to satisfy hunger, does not always meet all nutritive requirements so as to insure the full measure of health which each of us ought to enjoy. Thus the center of gravity of the problem of the relation of food to health has shifted from sanitation to nutrition.

We are now in a much better position to discuss the relation of food to health from the standpoint of nutrition than we were even a few years ago. Until recently we were hampered by the embarrassing fact that all attempts to nourish animals upon mixtures of carefully purified substances, containing all the chemical compounds then known as essential constituents of food, had ended in failure. Whether the nutritive failures resulting in such cases were due to faulty selection or combination of the nutrients entering into the artificial food mixture, or to the need of other substances in addition to those known as essential, remained obscure until about ten years ago, when the work of Hopkins in England and of Osborne and Mendel and McCollum and Davis in this country made it clear that an adequate food supply must furnish certain substances which are absolutely essential, but whose existence was previously unknown, and which we now know as the vitamins.

Although the vitamins have not yet been isolated in chemically pure form, nor their exact chemical nature determined, yet we know enough of their occurrence in foods and their functions in nutrition so that we can include them in our consideration of food values and nutritive requirements. We can now state nutritive requirements in terms of the substances occurring in foods with confidence that we are taking account of all essential factors.

Such a statement requires the use of a few terms which might formerly have been regarded as technical but which have become household words through war-time discussions of food values and food conservation. From this point of view an adequate food supply may be described as one which furnished: (1) sufficient amounts of digestible material to yield when burned in the body the necessary number of calories of energy; (2) enough protein of suitable sorts; (3) adequate amounts and suitable proportions of mineral and inorganic elements (the "ash constituents" of the food); and (4) enough of at least three kinds of vitamins. All four of

*Read before the Forty-ninth Annual Meeting of the National Conference of Social Work, Providence, R. I., June 22-29, 1922.

these requirements must be met by any food supply which is to be permanently adequate.

It was formerly common to illustrate the relation of food to bodily needs by likening the body to a steam engine. Somewhat better may the body and its food needs be compared to a gasoline engine and its requirements. The digestible organic foodstuffs such as fats, sugars and starches, correspond to the fuel for the engine; the proteins and some of the mineral matters to the materials of which the motor is made; other mineral matters to the lubricant; and the vitamins to the ignition sparks whose own energy is insignificant, but without which the engine cannot run, however fine the material of which it is built or however abundant and appropriate the supplies of fuel and of lubricant.

In practical problems of food supply we shall, of course, be dealing not with individual chemical constituents of foods but with articles of food as we meet them in the market. A brief statement of the outstanding nutritional characteristics of the chief articles or types of food may therefore be helpful at this point. The chief types of foods may be grouped according to their nutritive characters from the standpoint of our present knowledge of food values as follows:

(1) *Breadstuffs and other grain products.*—Economical sources of energy and protein, but not satisfactory in their mineral and vitamin content.

(2) *Sugars and fats.*—Chiefly important from the nutritional standpoint as supplementary sources of energy, although some fats are also important as sources of the fat-soluble vitamin.

(3) *Meats* (including fish and poultry).—Rich in protein or fat or both, but showing, in general, the same mineral and vitamin deficiencies as do the grains.

(4) *Fruits and vegetables.*—Greatly variable in their protein and energy values, but very important as sources of mineral elements and vitamins.

(5) *Milk.*—Important as source of energy, protein, mineral elements, and vitamins. The most efficient of all foods in making good the deficiencies of grains and in insuring the all-round adequacy of the diet.

It thus becomes apparent why a dietary made up, as so many American dietaries are, too largely of breadstuffs, meats, sweets and fats, may be satisfying to the palate and to the traditional demand for variety, may furnish ample quota of protein and calories, with fats in any desired proportions, and yet may be inadequate because of faults in its mineral and vitamin content. We now understand how it is that fruits, vegetables and especially milk in its various forms, serve (in ways which until recently could not be fully understood and appreciated) to make good the deficiencies of breadstuffs, meats, sweets and most fats.

So rapid and interesting has been the development of what is often called the newer knowledge of nutrition that many appear to have been misled into supposing that it has supplanted or is trying to supplant the conceptions of nutrition which were current a decade ago. At the risk of repeating the obvious, I believe we should constantly insist that the newer knowledge of nutrition does not supplant but does supplement our former views. All that we have ever known about protein and calories is as important as it ever was, and we have learned to appreciate the importance of the mineral elements and vitamins also. Each of these four factors should be given due emphasis without overshadowing any of the others. Calories, protein, mineral elements, and vitamins all are equally important in the sense that each of these four factors or groups of factors is absolutely essential and must be properly provided in order that the food supply may be adequate.

In order to make proper application of our present knowledge of nutrition every food supply should contain such proportions of fruit and vegetables and of milk, along with other foods which may be cheaper sources of calories, that the eating of enough food to satisfy the appetite and the need for calories shall at the same time meet all the other needs as well. If we could make our present knowledge of food values and of the ways in which different foods supplement each other so clear and convincing that everyone would follow it in the choice and use of food, this would certainly mark one of the greatest advances in the application of knowledge to human welfare. For good nutrition is an even larger factor in health, happiness and efficiency than we have hitherto realized, and our present knowledge of food and nutrition guides us not only in so planning a food supply as to make it adequate in all respects, but also in showing how a food supply which is already adequate may be made still better so that it will support a higher degree of health.

The Century dictionary defines health as: "Soundness of body; that condition of a living organism and of its various parts and functions which conduces to efficient and prolonged life. . . . Health implies, also, physiologically, the ability to produce offspring fitted to live long and perform efficiently the ordinary functions of their species."

We are somewhat accustomed to quantitative ratings of soundness and efficiency, and much more so to data of growth rates, birth rates, and statistics of duration of life. In human experience so many factors may enter to influence health in the course of a life time that it is hard to separate and measure the effects of food alone. But this can be done with laboratory animals of rapid growth and early maturity like the rat, and in experiments with the rat it is possible to determine under conditions uniform in all other respects the influence of food upon the various factors of health comprised in the definition just quoted.

While agreeing with the eminent pediatrician who said that "a rat isn't a baby and probably never will be," yet I would also point out that by properly planned and adequately controlled experiments we can learn much from rats which is applicable to the feeding of babies and grown people as well. And among the recent findings of nutrition experiments carried through successive generations of such laboratory animals the results of which are, I believe, directly and fully applicable to the problem of the attainment of the highest degree of human health, is the fact that starting with a diet already adequate, we may by improvement of the diet induce a higher degree of health and vigor. This has been strikingly shown in experiments with rats in which different families from the same stock have been kept for successive generations upon two different dietaries, the first diet adequate as shown by the fact that it has supported healthy growth, development and reproduction in some families for no less than six generations; the second diet differing from the first merely in that it contains a higher proportion of milk.

These experiments are still in progress, but certain results are already clear. Among the evidences of a higher degree of health which we find to result from increasing the proportion of milk in a diet already ade-

quate are the following: (1) More rapid growth; (2) more efficient growth, i. e., a greater gain in weight for each 1,000 calories of food consumed; (3) somewhat larger average size at all ages; (4) greater vigor as indicated by earlier maturity, larger capacity for reproduction, and greater success in rearing the young; (5) the period of full vigor was prolonged and the proportion of families dying without issue was greatly reduced; (6) the weight of the mother was better maintained while suckling her young, and the young grew and developed better during the suckling period; (7) both infant mortality and the death rate after infancy were reduced, and this notwithstanding the fact that the females had borne and suckled more young.

There is no reason to doubt that all these findings, as thus stated in qualitative terms, will apply equally in human experience and that a higher degree of health will follow an improvement in the dietary of the individual or the food supply of the community, such as an increase in the proportion of milk, even where the original dietary was already adequate according to all current standards. Let us then seek to use our present knowledge to insure not only adequacy in the food supplies of all our people, but such food supplies and food habits as shall induce the highest degree of health and efficiency.

Variations in Normal Physiological Functions*

THERE is no better way of learning what disease does to an individual than by studying normal physiological changes in the individual. The daily cycle of life is composed of such changes. Osler used to divide the human race into the larks who wake up lively and interested, and the owls whose activities do not ripen until late hours. The variation of normals is an interesting study. The effect of food, of bowel movements, of the menstrual flow must be understood if the normal behavior of normal beings is to be understood. The celebrated story of the prevention of Voltaire's duel by the timely occurrence of a belated bowel movement might be employed to illustrate the interdependence of great worldly events and small individual happenings. Accepting these few generalizations as facts, physicians are often forced to ponder on the woeful ignorance of misguided half-truths which prevail regarding simple body functions, and it behooves us to try to analyze some of these popular misconceptions, in order to evaluate and separate truth.

Perhaps the most discussed phase of physiology in the world centers around bowel movements. There are men and women who honestly believe that if they do not have one or more daily evacuations of a definite size, specific consistency, and constant color, they are unable to perform their daily tasks to the best of their ability. On the contrary, there are perfectly healthy human animals whose bowels move any old time but whose brains and muscles, nevertheless, are constantly active and alive. Why the difference in these two individuals? The answer, we believe, is partially physiological, partially psychological. The purpose and intent of the cleansing movement of the lower intestines is to rid the body of material for which it has no use. This material is composed in part of the "clinkers" left after food is burned, in part of bacteria, and in part of material secreted by the intestines. It represents the waste left over from the fire which induces and maintains the chemical reactions of the body. The reason why the reactions vary so much in individuals is apparent. No two individuals use food in exactly the same way, any more than do two furnaces burn coal in exactly the same way. One man eats food that has little indigestible residue and there are few "clinkers" or "ashes" left after the fire has burned; while in another person, a huge eater of coarse meats, vegetables or fruits, and other substances which the bodily fire cannot consume there will naturally be a large amount of material left in the intestines which must be eliminated.

Furthermore, even in two individuals whose food intake would be such as to result in the same amount of indigestible residue, the number and kind of intestinal movements would depend on other factors, such as exercise and habit. It is a well known fact that men accustomed to exercise who are plunged into a sedentary life usually, within a short period of time, become constipated. In such individuals the concurrent symptoms that occur, so often attributed to constipation, are probably due instead to the fundamental change in the man's life. For just as it is axiomatic to say that one gets out of any particular undertaking exactly what one puts into it, so it can be said that the intestines treat the individual in the same manner as they are treated by him.

It is not as generally recognized as it should be that the real secret of intestinal hygiene is proper habit. If the correct habit is once started, if proper attention is paid in the beginning, then the movements of the bowels become, as they should, a normal automatic function. Start things right and it will no longer be necessary to pay attention to the intestines. It is a decided evil, which physicians see often enough in office practice, for individuals to center too much attention on their intestines. The psychological element should become as automatic as the physiological and, unless it does so, trouble is sure to follow.

Factors of Sleep

In these days of the Freudian psycho-analysis so much that is bizarre, so much of the mysterious has been allowed to enter into and confuse the physiological factors of sleep, that it is almost like "angels fearing to tread" to venture to say that sleep is a normal physiological reaction required by normal individuals in the same way that food is required. What with discussions of the expression of libido during sleep, what with the wild interpretations of simple dreams, there has been produced in the minds of many people a feeling of wonder, even of fear, as to the nature of sleep.

Though we may not know what sleep is, we do know what it does. It rests the body, it rests the mind, and it gives the whole body mechanism, mental as well as physical, a chance to regain its power of "carrying on." There is nothing so necessary or so refreshing as sound sleep and there is no habit more difficult to

*The sixth of a series of articles on "Popular Medical Misconceptions," beginning with the March issue of THE NATION'S HEALTH.

break, once the habit is formed, than the requirement of a given number of hours sleep to feel rested in the morning. The well known fact that one man needs only five hours sleep while his neighbor needs eight is a good illustration of the habit relation which cannot be separated from sleep.

Perhaps this idea of "habit" has been neglected even more in the discussions of sleeplessness. It is just as easy to form the habit of not going to sleep as it is to do the reverse. Physicians in practice frequently find, when the difficulty is analyzed, that the patients who cannot sleep simply have formed the habit of not going to sleep. Why they do this is hard to understand, but we believe there is a subconscious, constant thought in the individual's mind that he will not sleep, and this constantly recurring thought actually keeps him awake. If such a simple explanation is not the real one and the disturbance is much more profound, it is difficult to understand the very great therapeutic efficiency of a dose of bicarbonate of soda and the considerable assurance of its efficacy.

Menses and Menopause

One of the most important results that have come from the removal of a false feeling of modesty which prevented women from instructing young girls regarding the care of their bodies, can be seen in the wider knowledge regarding the menstrual flow. Acceptance of this physiological function as a normal act, a realization of its variation in individuals, and the confidence that comes with knowledge have effected much in making the lives of girls less miserable.

Apparently, however, rational consideration is not so generally accorded that later period in a woman's life which is commonly known as the "change." This period is a normal physiological reaction also, though in some cases it borders closely on the pathological. The unfavorable reactions which occur at this period are frequently due to three causes, fear, ignorance, and resistance. Ignorance and fear can be removed usually by proper instruction, while resistance will likewise disappear if the thing is met as it arrives. As a rule the flushes, the headaches, the nervous symptoms are not serious and are only made worse by non-acceptance.

Just as men, accepting the onset of advancing years, must be contented with graying locks or, worse still, a "shining dome," and get recompense in the thousand and one joys of life in which they could not participate during the period of youth, so women can accept things as they are and devote their energies to interests which will afford both recreation and diversion, and through which satisfying adjustments may be accomplished. The main business of life is to live. Whoever faces the facts of life with no denial—and without dodging—is in a fair way to get the best of life there is. This is as true of the bodily mechanisms as it is of the psyche. If we are to establish those physiological automatizations which characterize healthful living, we must give just enough thought to the process to get the right habits going, and then forget we are burdened with bodies, for it may well be considered that notions of disease are as prevalent as organic disorders themselves, and that they always constitute a serious handicap.

Call for Country Doctors

The problem of finding physicians for rural communities is a matter of growing concern. In the March, 1922 issue of *Health News* Commissioner Biggs succinctly describes the situation as it exists today in New York state, and touches upon some of the causes of the scarcity of doctors in country districts. In some parts of the state, particularly in the Adirondacks, there are no physicians within a radius of twenty-five or thirty miles. One logging community in the mountains recently lost its only doctor and within three weeks 250 of its 330 inhabitants were reported ill from influenza and other diseases, with only such medical attention as could be obtained from a busy physician in another village twenty miles away. Such instances of lack of medical care are by no means unusual. Within four years 92 rural towns and villages in New York state have asked the State Department of Health to help them secure physicians, and, although every effort has been made, the vacancies have been filled in only 62 cases.

All this has a direct bearing on the question of maternal and infant welfare which has been so widely and effectively agitated this winter. Although the New York Legislature rejected the Federal Sheppard-Towner Act, it has nevertheless appropriated $130,000 for the development of new activities for the protection of maternity and child life. Yet, as Dr. Biggs points out, it is useless to talk about child welfare for those regions, at least, where there are no doctors, nurses or hospitals. A new task awaits the women whose indomnitable energy was so large a factor in bringing about the adoption of the maternity bills. Their help is needed in the solution of the problem of rural medical service, for unless some solution is reached the new laws for the benefit of mothers and babies will fail of their intended effect in large areas of the State.

The first thing to be done is to make country districts more attractive places in which to live, from the professional, social and economic points of view. In this direction President Pritchett in the latest report of the Carnegie Foundation urges that some of the professional advantages of city life be brought to the country physicians. Any moderate sized town, together with the surrounding area of open country of which it is the natural center, should be able to support a community hospital with laboratory, clinics, nurses, and consultation and diagnostic facilities as well as it supports a community high school. Even the small village can make a modest beginning with a little hospital which will greatly economize the time of the one or two local doctors. With the facilities offered by such hospital centers young graduates of our leading medical schools will be found more willing to settle in rural communities.

The Veterans' Come-Back Club

The Come-Back Club, an organization of wounded World War Veterans who are studying at Columbia University opened at Bluefields, an estate at Blauvelt, N. Y., a camp which they will share with hundreds of other disabled soldiers in the schools and colleges of New York.

The Fire Waste Conference of the Chamber of Commerce of the United States met July 12, 1922 in Washington, D. C. At that time plans for a national fire prevention week were discussed, need for which was shown by the loss of $1,300,000,000, in property last year from destruction by fire.

Mansfield's Child Health Demonstration

How a Typical American Community is Increasing Health of Next Generation

By DR. WALTER BROWN, Director, Child Health Demonstration, Mansfield, Ohio.

THE Child Health Demonstration is a co-operative effort to show what a typical American community can do to increase the health and strength of its next generation. It is being conducted by the National Child Health Council, which is the pioneer organization for the co-ordination of the national voluntary organizations interested in the health of children. This Council is composed of representatives from the following organizations: The American Child Hygiene Association, American Red Cross, Child Health Organization, National Child Labor Committee, National Organization for Public Health Nursing, and the National Tuberculosis Association.

These organizations felt the need after long individual work in their own special fields of seeing their problems as a whole. For instance, the tuberculosis worker soon found that his problem was not one of tuberculosis alone, but was interrelated with problems of the worker interested in child labor. Or again, the American Child Hygiene Association found that if it wanted to be of real service it must take into consideration the family as a whole, not only the baby. In other words, these organizations had come to the realization that their work was not only interrelated, but also inseparable. Out of this realization grew the National Child Health Council.

Although coordination in the national child health field is almost a pioneer effort, the Council has made remarkable progress. The member organizations clear their literature, plans, and itineraries through the Council. Methods of coordinating their work with other national organzations, public departments, and state and local agencies are being developed through reports, conferences, and field experimentation. National advisory committees dealing with such subjects as foods and nutrition, health education of school children, current child health news and literature, health provisions for state laws relating to children, and so on, have been organized. These committees consist of representatives of national bodies which have expert knowledge and experience to contribute and of individuals with outstanding ability. Their chief function will be to collect, study, and make available to the entire country the best information and the most authoritative opinion on subjects that contribute to healthful childhood. These advisory committees have already contributed much to the Demonstration.

One of the interesting features of the Demonstration will be "team work" between the public departments and private agencies in the city and county, on the one hand, and the six national organizations making up the Council, on the other. Very early in the life of the Council it became apparent that something more than conferences and committees were necessary successfully to coordinate their work. It is believed that a well planned cooperative demonstration in a typical American community would do more than any one thing to bring about the desired result. A sum of $200,000 supplemented by funds from the local community has been set aside to carry on this demonstration for a period of five years.

The Council has made long and careful study of the relative merits of approximately eighty communities which applied for the demonstration. Mansfield and Richland County won its vote because they most nearly met the requirements. The chief purpose was to select a city and county which would be fairly typical of the average of American life, the city to have a population of between 20,000 and 30,000, and the rural area surrounding it an equal number. Some of the specific conditions laid down were that a normal percentage of the population should be engaged in manufacturing; there should not be any strikingly predominant racial stocks; there should be a variety of industries; the surrounding area should be an agricultural territory; the community should be located in the Birth Registration Area, and vital statistics should be fairly complete; the mortality of infants and children should be strikingly abnormal.

In meeting these requirements Mansfield and Richland County have shown a deep sense of responsibility to the entire country for the success of the experiment, in addition to the natural interest and pride in the development of local resources. The judgment of the Council in selecting Mansfield and Richland County as the place for the demonstration has been amply justified by further study.

The City of Mansfield is a hustling,

Nurses corps ready to leave Child Health Demonstration headquarters to cover the entire county.

*Read before the Forty-Ninth Annual Meeting of the National Conference of Social Work, Providence, R. I., June 22-29, 1922.

Every school child in Mansfield and Richland County, Ohio, a community of approximately sixty thousand, is being examined in a cooperative demonstration in an effort to improve the health of the younger generation.

wide-awake industrial center with a great diversity of manufacturers. Its population of 31,000 contains no great predominance of any one racial stock. The age distribution of its population meets the statistical requirements of the demonstration. The social, educational, and commercial organizations are of a character and quality which promise to be of great value in our work for the health of the child. There is a good average group of physicians who are interested and willing to assist the demonstration.

Richland County is a typical agricultural region in the center of the Ohio wheat belt. It has a population of about 28,000 with a number of villages, and one small city of five thousand inhabitants. The school system is well administered. Practically no health work is being done by the official agencies. The Farm Bureau and the Red Cross are the two most important organizations.

The objectives of the Demonstration may be briefly summarized as follows:

(1) To work out a practical plan and an economical method whereby the resources of these national organizations can be effectively delivered to the local community, this to be done through and with the local agencies.

(2) To assess at their true value the various procedures now being advocated for the improvement of the health of children.

(3) To combine the best of these procedures in a way calculated to induce the local community to recognize their value and to make them a permanent part of their community life.

(4) To make available the training facilities for preparing workers to conduct this type of health work. The courses of training are to be made a part of the instruction in the various types of schools from which the community draws its trained service.

(5) To demonstrate how any similar American community can, by the adoption of these methods, promote the health of its children. The attainment of these objectives will depend upon several conditions. A method for securing real approval and active participation of the community in the projects of the demonstration. A way to overcome the natural reaction of any community to suggestions and directions from the outside. And a consistent refusal to duplicate already established health activities.

The Child Health Council is convinced that the final success of the Demonstration will hinge upon it being properly related to the official and voluntary health agencies now at work in the community. Consequently, a wide latitude of local administration has been provided for. The Council stands in an advisory capacity and functions in the Richland County solely through the Director. This has made possible the establishment of local machinery for local approval of and participation in the projects of the Demonstration.

Local Advisory Council

One of the first steps was the organization of a local Advisory Council. This Council is composed of a representative from each of the official health and educational departments, the social and welfare agencies, medical and dental societies, industrial and labor organizations, religious and civic bodies, and the agricultural groups. This Council has elected its own officers and a small executive committee which acts constantly with the Director in working out the details of local administration. Through this Council, the community has begun to assume its share of the responsibility for the Demonstration. It has secured and is equipping headquarters which will be used for the administration offices and for the main health center.

Any well rounded program for the promotion of child health requires the support and cooperation of the following recognized groups: (a) health authorities (city, county, and state); (b) educational authorities; (c) medical profession; (d) dental profession; and (e) related social and health agencies.

This is being accomplished for the Demonstration through the Council and its committees. The staff of the Demonstration consists of a small corps of trained workers. It includes a director for each one of the special services—medical, nursing, health education, nutrition, and social service. Each one of these individuals will strive to develop additional personnel out of local resources. Our energies so far have been directed along three fundamental lines which it is believed are a necessary foundation for further work: namely, (a) study of the health needs and resources of the community; (b) methods for securing adequate medical and nursing care for children; (c) methods for providing for proper health education.

A careful and systematic study has been made of the vital records of Mansfield and Richland County. To add to our accurate knowledge of sickness among children, we have just completed a Health Census. At the same time, we are recording the social and sanitary facts that will furnish an accurate picture of the health conditions of the community. From a study of these materials we will be able to gauge the health needs and estimate the health resources available for children.

The plans of the Demonstration include a primary Health Center at Mansfield with secondary centers in various parts of the county. From these centers as headquarters it is hoped to work out methods for continuous health supervision from prenatal through the adolescent period. The medical service will be in charge of a full time, well trained pediatrist, who also will be available for consultation service to the local physicians after the plan so successfully worked out at Framingham. Through

these centers the contributions of the nursing, health education and nutrition services will be co-related for the benefit of the health of the individual child.

The reaction of the community to the methods being applied can be best illustrated by a brief description of some definite projects. It was decided to offer to conduct health examinations for the children of the third and fifth grades. The purpose was three-fold: to test the functioning of the local Advisory Council; to demonstrate to parents and the professional groups the character and value of the examinations; and to secure experience and data on which to base a permanent system. The project was presented to the Advisory Council. Through the representatives of the medical and dental professions, the approval and participation of these groups were secured. The consent of the educational authorities was procured. The Parent-Teachers Association gave assurance of active cooperation.

This is the way it worked out. A health examination corps was organized. It consisted of a physician, a dentist, a nurse, a teacher, and two volunteers. A letter was sent to the parents of each child through the school teachers. This letter described the purpose and extent of the examination and urged the parent to be present. If that was impossible and the examination was desired, the parent was asked to sign a consent slip which had been enclosed.

Examination Routine

On an appointed day the examining corps visited the school. The volunteers who had been appointed by the Parent-Teachers Association performed the clerical work. The nurse made the tests of hearing and weight, and the preliminary examinations of the throat and for posture. The teachers weighed and measured the child and noted the normal weight. The dentist made a careful examination of the mouth. All children accompanied by parents, or having signed slips, were then passed on to the physician for the more complete physicial examination.

The response was more than gratifying. Out of 1,119 children examined, 718, or 64.1 per cent, had the complete examination. Out of this number 15.4 per cent were accompanied by one of their parents. The experience gained by these examinations is now being discussed with all of the groups. It seems certain that our first project has attained its threefold objective.

Physicians and dentists who voluntarily assisted in the first health examination at Mansfield.

One of the prime needs for successful child health work is a unified, economical, and practical public health nursing service. We are attempting to secure this by a real coordination of the existing nursing organizations. It is not planned to establish a separate nursing corps for the Demonstration. The intensive work for children will be carried on by adding personnel to the local nursing groups. To the end that the program shall be unified, these groups have elected the Director of Nursing of the Demonstration as their head. In addition the Main Health Center will become the headquarters for all the nurses. This will make it possible for the individual association to maintain its identity while we are developing the kind of nursing program which will best serve the whole country.

A large percentage of the ill health among our population is due to family habits. The best way to attack this problem is by means of health education. The best place to start this attack is by introducing proper courses of training in health habits into our schools. This is one of the major projects of the Demonstration. Fortunately we have been able to secure the hearty support of the local educational authorities. They have appointed the Director of Health Education of the Demonstration to the same official position in the schools. This will enable us to provide the content of health courses; to assist in training the present teacher to teach these courses, and to stimulate the normal schools to include such training in their courses for future teachers. In other words, we have set up the machinery which will make it possible to deliver the accumulated experience of our health educators to the local community.

The above description covers the origin, policies, and preliminary steps which have been taken to place the Demonstration on a sound working basis. It is planned gradually to add to the program the contributions of the mental and social hygiene groups. At the same time we are endeavoring to play our part in the development of the co-related social agencies of the community. While it is too early to speak of definite results, we have every reason to be hopeful that out of the Demonstration will come ways and means whereby the resources of the entire health field can be successfully delivered to the local community.

The Institute of Applied Pestology recently organized in London, states its object thus: To wage war by all possible means on vermin and all pests inimical to man's welfare, and to enlist the help of scientists, medical officers of health, sanitary officers, manufacturers, chemists, and others, and the public generally, in the cause of hygiene, well-being, and self-preservation of humanity; and to endeavor to coordinate the work of these to this purpose.

The Foot Factor in the Future of Women

Shoes Conforming to Foot Shape Add To Feminine Efficiency and Comfort

By HARRIET WILDE, New York City.

WHAT have feet to do with the future of women and what does the future hold for women? Whatever it holds will be influenced by the feet of women, for feet have to do with almost everything in life and ultimately with the success or failure in terms of which the future will be spelled for each one.

Feet are even more fundamental than they seem. They are veritable foundations, and no superstructure can prosper unless based upon foundations suitably planned and strongly built. A Woolworth building with wobbly foundations would not long persist to gladden the eyes of the commuters into New York. The whole is no better than its underpinnings. The individual is no better than the feet she stands upon, the family than the feet of the family, the group than the feet of the group, the state than the feet of the state, and so we might go on until we traced the destiny of nations and of international relations. Feet as foundations have a very direct effect upon health, and health bears a direct relation to personality and success. The success of the race, therefore, depends in a measure upon the feet of the individual women of the race.

Feet are not only fundamental—they are universal. Everyone has feet. Everyone starts life with an equal number and about an equal amount. Except in cases of disaster the number remains constant through life though the amount may vary considerably later. And the plan is good. The mechanism is perfectly adapted to its purpose of weight bearing and locomotion.

Feet are meant for use. In walking, running and dancing; they take us to work and to play; they are with us as good friends and companions all along the road even unto the end. If they are thus to be useful members of the body politic it is necessary that they be strong, that they shall endure. The normal foot is a strong foot. It is also intended that they shall be comfortable. Nothing that is uncomfortable can be useful long. Comfort does not necessarily mean degeneration. It means freedom from limitations and restriction with ability to function. The normal foot is a comfortable foot.

In this day of misshapen feet it is necessary to go back to the foot of the baby to gain a clear picture of the beauty and mechanics of the foot. When one considers that feet are among the most useful and continually worked members of the body and that from their misuse result fatigue and various bodily aches not to mention the injury to the feet themselves, it is imperative that shoes be chosen for the shape of the foot rather than the foot cramped into shoes of fashion's dictates.

High heels and pointed toes must certainly give way to a shoe following the lines of the foot before the women of America can expect to obtain foot comfort and efficiency.

It is further intended that feet shall be beautiful. They are beautiful to start with as witness the bare foot of a baby. Its characteristics are these:

The long straight toe has an important part in the walking step.

Narrow at the heel, broad across the toes, like a triangle with its base in front and pointing backward; straight on the inner border, so that its big toe and heel and the line connecting the two would fit along a ruler or the edge of the table. Of its five toes, the big one lies flat and points straight forward, while the four little ones curve and rest on the rounded surface of the last segment. When two of these little feet are placed side by side the inner borders and the big toes touch each other, and the longest part of either foot is at the end of the big toe. If we look at our hands we find them long on the middle finger with the other fingers sloping toward the middle finger. The hand is primarily intended for grasping and for fine adjustments, bringing the fingers together—thus the middle finger needs to be longer than the others. The foot, on the contrary, bears the weight of the body as it goes forward and the long straight toe has an important part in the walking step.

Feet are small in proportion to the structure which they support, but they are so built that they carry the superincumbent weight easily through their arches as the weight of a bridge or building is carried through its arches. The two main arches of the foot are the longitudinal arch curving under the foot from heel forward to ball and the short arch which lies at right angles to the long arch across the front of the foot at the base of the toes. This is known by several names: anterior, transverse, or metatarsal arch. Through the strength and elasticity of the ligaments and muscles the bones of the foot are held in place and the function of the arches in supporting the foot is maintained.

To go back to the baby, as we watch him grow changes take place in his hands. They become larger, heavier, stronger, acquire lines of character, develop greater usefulness than the baby hands, and yet remain comfortable. They vary in type: some are slender and delicate, some broad and stubby, some acquire great deftness in different directions, but

their essential characteristics are the same as they were in the hands of the one year old.

Is it the same with feet? Are they the same shape? Are they just as strong, as comfortable, and as beautiful? A few exceptional ones possibly are, but the majority are not. In adult and middle life are they strong? If so, why are so many firms selling supporters and braces and arch preserving devices, and why are so many special kind of corrective appliances on the market? If feet are comfortable, why are so many chiropodists getting rich, why so many women shifting from one foot to another when they have to stand, sitting down at the first opportunity and riding short distances when they might swing gaily along getting a bit of exercise and saving their nickel?

Feet Can Be Beautiful

One continues to smile at the idea of beauty in the adult foot. But if faces and hands remain or grow beautiful, why should not feet? Characteristics of the average grown up foot are fatigue and dull or acute pain; unsightly and uncomfortable corns and calluses, pinched and overlapping toes which, instead of enjoying space each for its own activity and independence, lie all crowded together like too many persons in an unregulated tenement. The big toe that once led the march is pushed over toward the center either under its neighbor or on top of it, losing its leverage ability entirely and causing an ugly and often very painful big joint to develop at its base; and arches instead of curving upward proudly lie humbled and most probably objecting loudly.

In addition these local difficulties often result in fatigue and weariness, leg ache, back ache, head ache, poor posture, indigestion, constipation, with a host of accompanying conditions; pelvic disorders, menstrual irregularities, inability to exercise sufficiently with resultant overweight, irritability, ill-health, inefficiency, unhappiness.

Leaving out accident and disease conditions, such as infantile paralysis and bone tuberculosis, two principle causes have brought the lovely free feet of the child to this state of unhappy slavery: first, the way we use our feet, and second, the garments we clothe them with; how we walk and what we wear, or what we do with them, and what we do to them. The feet themselves are blameless. They were perfectly planned and generously provided. It is we ourselves who are at fault; sometimes through ignorance, sometimes through carelessness, sometimes apparently when we know better, with direct intent to kill. Of the two causes one is almost as bad as the other, though more attention has been paid to one than the other. Within the last few years there has been considerable agitation for suitable shoes, but comparatively little has yet been said or done about the use of the feet even by people one would expect to find the most intelligent on the subject, i. e., the directors of physical education.

Y. W. C. A.

The short arch which lies at right angles to the long arch across the front of the foot at the base of the toes has for its purpose, in conjunction with the longitudinal arch, the support of the foot.

How then should we use our feet? Again we go back to the nursery. A normal baby, if left to her own devices unassisted by over-ambitious parents or nurse will approach the walking and standing problem in this manner. Lying on her back she kicks lustily and waves her arms, lying on her abdomen she does the same. Next she rolls over from her back to her side and from her side to her abdomen, then she rolls back. Next, lying face down and kicking she begins to move, hitching forward or back her whole length, except her head, in contact with the floor. It may be that she shoves along on her back first, anyway she begins to progress, sometimes even sideways like a crab. All this time she is strengthening muscles of legs and back, abdomen, chest and arms, until she is creeping on knees and arms, the forearm resting on the floor. Next she is up on her hands and knees, then hands and feet. Along in here somewhere she has found strength enough in her little trunk to sit upright, so she creeps to the wall and sits beside it. Then she takes hold of the wall and pulls herself to her feet —drops down and scampers away on all fours to another pulling-up post, and so on for several months cruising about the house sometimes even up and down stairs before she can walk. Then one proud day she stands up, casts off support and runs triumphantly half way across the room. Pretty soon the run slows down to a walk, and how is she walking? This, remember, is the *normal* baby, properly fed, with parents above the average who have watched her follow her own instincts, and develop her weight bearing muscles. She walks at first with feet wide apart and toeing in, her big toe lying flat on the floor, her toes gripping and her two main arches developing as they are put into use. (I am also supposing that she begins to walk bare footed, or in the softest of kid or chamois moccasins.) As her legs strengthen they come closer together until they are straight. Her feet point straight forward, big toe leading, aiming in the direction she is planning to go. And straight forward they will stay as long as she is let alone. Thus the normal baby stands and walks, thus the American Indian walked, thus all foot prints of primitive peoples are shown in all anthropologies, thus the baby girl of today should grow into the woman of the future, advancing straight-footed toward any goal.

Clever Mechanism of Foot

Standing with feet parallel the weight is borne easily through the longitudinal arch of the foot, which so long as it comes down directly from above will carry it easily, as will the arch in a building carry the weight of the building. Suppose that building were set sideways over its arch, what would happen to the arch? What happens when we stand and walk with toes pointing outward? This happens: The weight hits the arch of the foot on the slant and swings it in toward the other foot and down toward the floor, bearing down on muscles and ligaments, making them work at a tremendous disadvantage; tiring, straining, and treating them as they were never meant to be treated. Muscles are something like elastic bands, when stretched out they tend to return, but if repeatedly overstretched they lose their returning power and are not in condition to respond to stimulus. Standing with the toes turned out brings the weight down upon the arch in the same wrong direction and in addition puts pressure upon the big toe joint and destroys the pushing,

X-ray of woman's foot in high heel showing weight thrown forward on the anterior arch.

lifting and gripping properties of all the toes. In toeing out we are not using our feet, we are taking them with us on the end of our legs. They are just about as useful as rubber tips on the end of crutches, they come between us and the floor. With lack of use of the feet, deterioration, loss of tone, and softening occurs. The foot muscles thus treated cease to support the arches, which are the secret of the successful foot, and down they go resulting in flat foot, calluses, fatigue and pain.

Sometimes the arches go quite early in life, sometimes not until later. Some people seem to escape all result of wrong doing. These people are really menaces to society. They lead others astray by their example and all of those others may not escape as they did. Other things help the wrong use as too much weight above, out of proportion to the size of the feet. In this respect light weighters get off more easily than their heavier friends. Too much standing especially when standing in the wrong way often causes foot trouble. Saleswomen, laundresses, machine operators, nurses and teachers who stand to teach often suffer from weak feet. Standing is worse than walking, for most people walk straighter than they stand, and there is a minimum activity in walking even in the wrong position.

With the coming into vogue of foot covering, much trouble and in recent years much controversy has resulted. The arguments for some type of foot clothing are undeniable, however radical we may be — inequalities of temperature, inequalities of pavements and floors, stones, tacks, dirt, convention, appearance, habit, and the many, many people whose living depends upon the shoe and stocking and allied industries. Is it not essential therefore that the coverings for these very useful parts of our machine be as rational as possible? Shall they not increase their efficiency, assist in strengthening them, allow them to remain comfortable, permit their freedom, enhance their beauty, and encourage their normal use in the normal position?

Speaking of hands once more, we cover hands for cold, for convention, for appearance, to increase their strength and power for some activities, such as farming, and handling rough or heavy material, but we cover hands with garments which correspond to their shape and use. Our hands are quite useful with gloves on. If we are going to sit with them idle in our lap and listen or look for an evening, we wear thin, small gloves, but if we are carrying a suitcase or driving a car we wear loose, heavy ones. Whichever they are, they are made in the likeness of our hands.

What Shoe Does to Foot

It would seem that our hard working feet should receive the same consideration; their covering should be the shape and size of the foot. The foot originally was narrow at the heel and broad across the toes, apex of the triangle at the rear. Where is the apex of the triangle in most of the shoes of today? It was straight on the inner border, the great toes of the two feet lying close together. What about the pie-shaped piece that could be fitted in between most of the toes of the conventional shoes? Its longest point was at the end of the great toe on the inner border. Where is the longest point of most shoes? Is it not in the middle more like fingers of a glove? The longest point of the glove should be in the middle because the middle finger is the longest finger, but the shoe should not be long in the center, because the longest point of the normal foot is not in the center, but on the inner edge, at the end of the great toe. It is hard to believe this when we see on all sides and in most shop windows shoes for men and women pointing long in the center. Convention and custom have trained our eyes to see so-called beauty in a shoe of this shape. Boats must be pointed to make speed by cutting through the water, but even in New York the congestion has not yet reached the mark where we must plow our way through the crowd with our shoes. Even so-called sensible shoes, English Brogue and the "flapper" sandal of 1922, although round on the end are still long in the wrong place. It is custom and fashion after all. It is also hard to believe if we could look at rows of adult feet. If two dozen women at any club meeting stood barefooted on the platform, how many of the feet would have straight great toes, free and uncrowded little toes full of activity and strength? They were all so once. Some began in childhood to go astray because they grew rapidly and unwittingly were kept in short stockings and short shoes. The very first harm may be done by the wool bootees of infants which shrink in washing. Some never had shoes or stockings too short, but as soon as they outgrew children's sizes were put into adult shoes pointing in the center, long probably, but curving in at the base of the great toe, pushing it over and crowding the little toes and the trouble began. Nowadays children are often put into adult shoes at seven years old.

Very much less need be said about heels since the fashion swing is for lower and lower ones. The latest fad shoe one sees on the feet of girls is almost heel-less. But because it is so recently that heels were high, and because fashion is bound to change again before long, it is well, briefly, to consider heels. In the first place, why heels at all? Teeth arrive when we need them, nails protect the tips of our fingers and toes. Eyebrows and eyelashes guard the delicacy of eyes, and yet people feel that somehow in the process of evolution the finishing touch was forgotten in the supporting point of the whole structure.

The origin of high heels is interest-

ing. As the bottom of the shoe wore out first on the heel end, that part of the shoe was made thicker so that it would last longer, merely an expediency measure. The first high heel was worn by a short French king, a man, to increase his height, a vanity measure. We would consider high heels on men very silly now, but they are no sillier than the pointed shoes men have recently been wearing. The elevator man in our office building looked so miserable one clear, crisp morning last winter that I asked him if he were ill. "No Miss," he said, "but I have such sensitive feet, this cold weather certainly does make them cry aloud." His feet were crying aloud against the pointed shoes quite as much as against the weather.

The Argument for Heels

If we must wear heels as custom, tradition and trade seem to think we must, the lower they are the better. People will tell you that they never wear high heels, they always wear Cuban heels, measuring in some cases two inches or two and a half. An inch is the maximum height allowable for the normal foot. In this the foot is almost as useful and active, as without. People will also tell you that they have such high arches they cannot wear low heels, with a little self-conscious belief that there is an added aristocracy in this inability, a strain of good old Southern or Knickerbocker ancestry. The truth is that a too high and rigid arch is almost a deformity, and the discomfort of the low heel is caused by a condition quite off the normal.

High heels may cause all sorts of troubles: short calf muscles at the back of the leg, with pain in the leg and back. When the weight is thrown forward, instead of sailing on an even keel we are down at the head, or down on the anterior arch, which under a greater proportion of the weight than it is intended to carry protests and flattens. Pushing flat against the unyielding surface of the floor or pavement it develops a callus on the under surface in the center. Discomfort, fatigue, and pain result, pain sometimes on the sole of the foot, sometimes through rubbing in relaxed joints or pinching of nerves in the toes and top of the foot, even way up the leg. Then if at the same time that we tip forward on to our toes we crowd them into a space quite different in shape from their shape, we turn these already maltreated toes out and bring the pressure all sideways, and sometimes in addition to that we weigh several pounds more than we should.

The shank is the under surface of the shoe connecting the heel and toe. In other words, it is the covering of the long arch part of the foot, the arch of the shoe. For generations this shank has been made with a steel insert. Many shoemakers will tell you that steel is necessary to hold up the shoe, that without it the arch will break down. This has been proven false by the firms who are now selling shoes made with no steels in the shanks. These are flexible shank shoes which are increasing in number, as the advertising pages of the newspapers show. (To test flexibility, bend the shoe down in the middle, bringing the toe and heel together —not as people often demonstrate by bending the shoe up at the ball.) When the shank is flexible the foot is able to exercise its muscles in walking, and as muscles are exercised they grow stronger. Walking with a flexible shank and walking straight with a flexible shank will make feet stronger and stronger. It is also easier to walk straight with a flexible shank, because the shoe can bend in the center as the foot bends, and not have to turn out because of the stiff shoe. It encourages the gripping qualities of the arch and the toe muscles.

For this same "freedom" reason, low shoes are better for the feet than high shoes. Is it logical to bind and tie up tight a group of muscles that we want to strengthen? Low shoes, mocassins, sandals, barefeet,—the less restriction the better. Many women have recently been indulging in the joy of barefoot dancing, rhythmics. At first the feet were tired and sore from the unaccustomed use. They felt as other parts of the body have felt after a first game of tennis or a horse-back ride.

Sense Not Fashion Dictator

And now what can be done about styles? Follow fashion markers, passively do what a few style setters, mostly men, say? Once upon a time an English king suffered from gout and had to have his shoes built wide and square at the toes. Fashion followed its king, and shoes for men and women were made square and wide. Shall we follow fashion like sheep, or shall we rise up in our independence and lead? Can we not educate to keep feet good: first—through nutrition, as the world is fed so will it grow and walk; second—through

Flat foot can be diagnosed almost without further examination from the appearance of this shoe.

right habits of using feet, standing and walking. Here the main responsibility might seem to rest with mothers, nurses, physical educators. But it does not end there. Every one is a daily example to hundreds of others. Every well dressed woman walking straight footed and free footed helps another woman or girl to become the same. Demonstration holds an important part in all education. The United States Army still toes out. When the men's feet broke down during the war they were turned forward and given foot exercises, but they were first encouraged to break down by long hours of standing and walking in a bad position. The New York City Police force on the contrary is taught to toe forward, and much emphasis is laid on foot care. The pamphlet "Ailments of the Feet, Their Cause and Prevention" was written especially for the men on the force; for no patrolman or traffic regulator is more efficient than his feet. Think of entrusting the safety of our citizens to men made irritable and ineffective by troublesome feet! Third: educate by wearing and talking good shoes. Every well dressed, normally shod woman helps some other woman or girl to wear the right kind of a shoe. Often you will hear some one say "I never have any trouble with my feet, why should I wear such looking shoes?" A little while ago I used the word "menace." These are the "menaces," women who in spite of going contrary to all the foot laws apparently suffer no consequences. This happens in other lines than feet —digestion, eyes, etc., but sometimes the individual suffers later. No pair of feet can live to

themselves alone; they have an influence, a radiation, and it will either be for good or for bad. So you see it is not all in the hands of the mothers, teachers, and physical directors.

While this educational effort and example will doubtless produce a future of perfect feet, in the mean time there are all around us pathetic members that are not joys to own, that are suffering the results—of all sorts of things. For those I would like to make a few suggestions. Don't put up with them, patiently or impatiently! Get rid of them! Not the feet as wholes but the causes of the discomforts. Find out what is wrong with them, and tackle one problem after another. Get them as good as you can. It may take time, it may cost money and trouble, even operation in some cases, but it will be worth it, and remember it is seldom all the fault of the shoes. People say "I have spent hundreds of dollars on shoes and nothing has helped me." There are almost no feet that can't be helped, many that can be cured. If the trouble is short calf muscles, they can be lengthened; weak arches can be strengthened by exercise; big joints can be straightened; calluses and corns can be removed; habits of walking can be changed.

But don't make the mistake of following the advice of someone who sees your foot—not even "Through a glass darkly"—but through a stocking, not at all. Many women will accept as scientific data what a shoe salesman, a so-called "specialist," tells them, forgetting that the shoe salesman's chief interest is not always in the "future of women," but in the selling of shoes. There are happily an increasing number of men in the shoe business who are as honestly interested in the welfare of feet as they are in the cash transactions in their stores. A few pioneers struggled along for years trying to do for women's feet in spite of the women themselves. What can they not do when the women are on the same side demanding the right shoe? Increasingly right standards are coming to the fore.

Heart Disease and How to Prevent It

High and Increasing Cardiac Mortality Makes Disease Public Health Menace

By ROBERT H. HALSEY, M.D., New York City.

SINCE 1916 an increasing amount of attention has been directed to the study of disease of the heart. The more careful the detailed study has been, the greater the impression made that heart disease has become a very important, and is becoming the foremost, item in public health consideration. As yet the evidence has been obtained from only three sources in any detail and from no one completely. The evidence demonstrating the national importance of the problem is the increased death rate in the general registration area; thus in somewhat over half the states of the Union, representing approximately 60 per cent of the population, there was, for the year 1920, an increase in the rate from 131 to 141.9 per 100,000. This represents approximately 10,000 more deaths from this cause (during the year. During the same period (1920) the deaths in the city of New York increased by 912, from 10,433 to 11,345, in a population of 6,141,446. That this increase is not restricted to New York is shown by the increased rate of 144 in Detroit, a city with a population of 993,678, and having much better general health conditions.

In the *Statistical Bulletin* of the Metropolitan Life Insurance Company for April, 1922, page 4, one reads: "By March (1921) the rate for organic heart disease had reached 168.2 per 100,000, one of the highest figures ever recorded in any one month among Metropolitan Industrial policy holders."

Turning now to the examination of the living, one finds that of the men between the ages of 18 and 30 years in the draft during the recent war 468 per thousand were found to have noteworthy physical defects and 35 per cent, or 1,000,000 men, were rejected as incapacitated thereby. Most remarkable is the finding that 13 per cent, or 130,000 men, of the 1,000,000, were incapacitated by cardio-vascular defects. When one considers that the draft reached only a twelve-year section of the male population, one is left to speculate what the remainder of the male and of all the female population, which is totally unaccounted for, would show.

The next large group of the population which has been examined is the public school children between the age of six and sixteen. In general, the surveys indicate surely that 1 per cent have organic disease and one-half of this figure have very serious damage. And, since a very large proportion of the children having heart disease are found to have it when first entering school. there is no doubt but that a large group of children during the pre-school age have suffered the damage from heart disease.

Not only does heart disease shorten life, but it incapacitates the individual for full productive achievement. There is, because of it, a direct loss of earning power, which can be readily estimated, to be added to the economic loss of the community.

According to the insurance statistics, there is a curtailment of twenty-four months in the life expectancy of females and twenty months in that of males. The loss is heavier among the white than among the colored. It is indicative of what may be accomplished by proper preventive measures that the mortality among the colored race is falling. Something of the great cost to the community of heart disease may be realized by the study of the admissions to one of the large New York hospitals. In one year, 159 patients with heart disease were admitted, costing 3,207 hospital days, or, at the prevailing rate, $15,-714. That is, each case required an average of twenty days or approximately $100. Add to this wages lost of $100 as an average, gives the figure of $200 for each person with heart disease. From figures reported by the Association Cardiac Clinics, there are over 4,000 patients attending, thus there is a potential loss of $8,000,000 in the cardiac clinic patients of New York. The deaths, for the country as a whole, from heart disease approximate or exceed 150,000 each year. On the above basis of $200 for each patient, there is a yearly loss of $30,000,000 as a minimum.

If we recapitulate we find that the deaths recorded in the country at large, in the cities and among holders of life policies, show an increasing rate from heart disease. The male population between eighteen and thirty years of age shows a large number handicapped by heart disease. The young school group, six to sixteen, shows at least 1 per cent so damaged. From all these sources the evidence is such as to justify the assumption that a large and appreciably increasing proportion of our population suffers and dies because of heart disease.

Such being the case, it behooves us all to devote every energy to such measures, which will not only prevent a further increase, but will bring about a reduction in the number so handicapped.

Annual Death Toll 150,000

Any disease which involves so many of our population that it has a death toll of 150,000 each year may well be considered a public health problem, a problem of a magnitude which requires and justifies the most careful and accurate study in order to discover and outline intelligently the methods by which it may be prevented. Before practical solutions can be devised, the various phases of the problem must be investigated, and this can only be done by gathering information from all sources and of every kind having a bearing upon the subject. From data thus collected the origin and course of the disease may be learned as well as the effect of certain procedures of a medical and surgical nature. As fast as facts are available they should be disseminated among the profession and to the public in order that both may learn the way to accomplish prevention and, in the learning, become imbued with an enthusiastic will to prevent. Recent advances in public health work have indicated the presence in the public of the power and desire to carry out any plan if it is clear and effective. No plan can be effective unless it provides for the intelligent cooperation of the various public health agencies and the public.

From each individual victim must be obtained the facts about the conditions of life, environment, the story of the onset and course of the difficulty. At the same time, a careful physicial examination must be made, and later repeated, in order to learn the type, degree and changes in the condition of the heart. Every one found to have a damaged organ must be classified and differentiated, so that the advice shall be personal and show discrimination, not only in the method of life advised, but, also, in the application of knowledge gained, so as not to spread the disease to others; for, as surely as there is an increase in the incidence, there must be definite ways in which that incidence can be decreased.

Of course, the above requires frequent physical examination of those who have a damaged heart. Repeated examination with this purpose in view will emphasize the need of, and create a demand for, periodic examinations, whether the person be well or ill. The employer will learn the importance of knowing the condition of his workmen in order that they may not be permitted to do work which will ultimately incapacitate them. The employee will learn to understand the importance of knowing his condition and what work it may be possible for him to do without injury to himself.

Periodic examinations will not only reveal the often unsuspected damaged organ, but will provide the opportunity for conference and advice, as to what habits or conditions of life might well be altered to prevent the actual injury by overtaxing the already damaged heart. Periodic examinations will be valuable, too, to determine the actual morbidity of the damaged heart.

A survey on a broad scale and from various points of view should reveal what elements of climate or housing make the occurrence of heart disease more frequent in one country than in another; or in one part of a country than in another part. Thus, it may be possible to determine what can be done to diminish the incidence of rheumatism in England or the occurrence of thyroid disease in the north central states of this country. Is the distance from the ocean a factor and can the systematic supplying of iodin in iodids diminish the incidence and, thus, decrease the frequently damaged heart? School children of northern Ohio have shown great benefit from the small frequent doses of iodids. Does the result warrant the continuation of the method and, under what conditions? If careful consideration reveals evidence that the method has value, then a wider distribution of the knowledge of physicians in the area would be justified and could be made feasible. Is there any relation between the causation of simple goitre and toxic hyperthyroid conditions? A careful research would well repay in life. What part, if any, do geological conditions play in the causation of, or freedom from, heart disease or endocrine insufficiencies? Do the earlier geological areas affect the incidence of thyroid disease? Do such conditions account for the toxic goitres and heart damage, and if so, by what method may the damage be prevented?

Need for Intensive Survey

Why do the colored races in our cities have a much larger incidence of heart disease than the white race living in the same areas? Does the pigment of the skin prevent beneficial effects of the sun's rays, just as window glass will prevent the beneficial effect of the sun on rickets, gangrene, and other diseased conditions? What factors determine the shortening of life expectancy by heart disease in the colored of both sexes, so that at the age of 35, it is 2.23 years in the male and 2.60 years in the female? Why do white females suffer greater curtailment of life expectancy up to 24 years of age while the men suffer more after the same age? Does open air life with exposure to the sun's ultra violet or other actinic ray account for the differences? Do economic conditions of poverty and wealth or inherent excesses play a large part in the causation of heart disease and how much may a persistent campaign of education among any group or nation be expected to reduce the mortality and incidence of the disease?

A close analytical study may be able to discover if it is true that heart disease is transmissible from parent to progeny and what factors determine such propagation; is it a mendelian unit, and what breeding conditions may favorably influence? Applied eugenics may be the only answer. A minute widespread investigation of the life conditions under which the children with heart disease have developed the damage may reveal some common factors which may be isolated and the knowledge practically applied with a definite effect by preventing further incidence. An intensive study of occupations where there is a prolongation or frequent recurrence of subjection of the individual to excessive forces involving muscular or mental endurance, high or low or greatly varying degrees of temperature, may yield information of value in preventing injury to others.

There is room for analysis of all the evidence bearing upon the relation of focal infection to damaged

heart tissue. There is evidence suggesting that the removel of infected tonsils diminishes the subsequent incidence of joint pains and rheumatism, but there is little or nothing but assumption to show that the tonsils act in any way than as portals of entry.

In the care of children who have infectious diseases, there is a very great opportunity for the family and physician by better and earlier quarantine to reduce the number of other children who become infected. To what extent better and more individual care will effect the incidence of heart disease among children remains to be determined by actual trial. In this connection it is interesting to note that in the histories of a group of children considered normal on physical examination, 58 per cent had had measles, 33 per cent pertussis, and 18 per cent one or more attacks of tonsillitis. Compare these findings with the history of a group of children who had organic heart disease and one discovers 64 per cent had tonsillitis, 45 per cent rheumatism, 36 per cent measles, 18 per cent pneumonia, 17 per cent diphtheria, 14 per cent chorea, 13 per cent pertussis, and 12 per cent scarlet fever. From the above, one may infer that a greater watchfulness, and possibly prolongation of the convalescence of such disease, may definitely prevent damage to the heart in children. Certainly a better quarantine should diminish the spread of the children's diseases for it has been shown that increasing age tends to reduce the probability of infection by these diseases.

Even the common "cold" and mild attacks of grippe or influenza may well be the start of serious heart damage. The general estimate of the harmlessness of such infection should be revised in view of the fact that a week's illness from such infections may require five weeks of convalescence before there is complete recovery to previous energy production. There must be a revision of the opinion as to when complete recovery from infectious diseases may be considered to have been established in order that damage to the circulation may be prevented. It is the duty of physicians, therefore, to prolong the period of convalescence and to teach the necessity for such care, in order that the fear of consequences which is first inculcated be replaced by the satisfaction of faith in the knowledge of prevention.

The specific selection of the syphilitic spirillum and virus for the blood vessels and heart is common knowledge, and the prevention of this damage is so involved in the campaign against venereal disease that it seems scarcely necessary to mention, yet if more emphasis were put upon this phase of the physical damage by syphilis, possibly less frequent infection and heart damage might result.

The disappearance of typhoid as a public health problem has removed a source of circulatory damage and made a beginning in real prevention of arterial disease.

A wider use of knowledge already available concerning methods of living, both for the individual and groups, their occupations, and the conditions under which they work, would make for better community health. The better use of leisure time in sports, recreation, and avocations might well prolong the efficiency of the circulatory system. A better regulation of the frequency, amount, and variety of food eaten may be a factor in eliminating certain types of deleterious conditions responsible for the production of heart impairment.

Recapitulation

The scope of the work for prevention is seen to be very broad. Few of the possible methods have been studied and not all the known methods are generally applied. To recapitulate, heart disease incapacitates a large number of our population and is the cause ascribed in an increasing proportion of deaths. The numbers of the population involved directly or indirectly is so large as to warrant an early and extensive investigation of the situation. Since there is an apparent increasing death rate, there must be some way to overcome the active agent. To determine what forces are acting, there must be a careful record made of all cases of heart disease over as wide an area as possible, the wider the better. Such a survey must enlist every branch of science and include an analysis of living conditions, climate and housing, personal, family, and city habits as well as the methods and conditions of occupation and recreation.

The knowledge already available must be practically applied and broadcasted to the physician and public. The profession can raise its standard of quarantine, care of infectious disease, and prolongation of convalescence. In prevention lies the opportunity for the greatest good to the individual and to the community.

Educational Movie Rules in Pennsylvania

After a year of public discussion and consideration by a special committee and members of the Industrial Board of Pennsylvania, the special regulations governing non-theatrical exhibitions of motion pictures were adopted on May 9 to be effective September 1, 1922.

The principal feature of the regulations is the distinction between the flammable (nitro cellulose) and the slow burning (acetate cellulose) films. As a requirement for the non-professional use of flammable film in approved fireproof booth must be provided before permits for operation may be issued.

The regulations are being published in a separate pamphlet as Supplement No. 1 to the Safety Standards on Motion Picture Operation. The rules apply to all motion picture exhibitions before public assemblies except in theatres, opera houses, motion picture houses and factories or other industrial establishments in communities other than cities of the first and second classes.

Two general types of motion picture projectors are recognized, according to whether they are to be used with both types of film or with only slow burning films. Permits for operators and use of buildings for motion picture exhibitions are similarly classified to type of film to be used. All slow burning film to be used with approved projectors shall be marked to indicate that it is slow burning and manufacturers of such film may be registered for products and markings with the Industrial Board. All motion picture projectors shall be approved by the Industrial Board before being installed or operated.

An applicant for a permit is required to file his application, accompanied by affidavit. Permits are effective for one year unless revoked.

Permits must also be obtained for use of buildings where motion pictures are exhibited under these rules. Two classes of permits may be obtained; one, covering building or rooms in which flammable film may be exhibited. Such permits will be issued only when approved fireproof booth is provided unless in case of exhibitions before the sick, aged, infirm or other "shut ins," the Industrial Board specifically rules otherwise; and two, to cover buildings or rooms in which only slow burning film may be exhibited.

Education—A Factor in Health Promotion*

Faith in Early Training Gives Permanency to Health Education in the Public School

By C. E. TURNER, M.A., C.P.H., Assistant Professor of Biology and Public Health, Massachusetts Institute of Technology, Boston, Mass.

AS MEMBERS of the public health profession we are interested in health education as a means of reducing mortality and morbidity rates and as a measure by which vigorous health may be promoted. We grant, of course, that a knowledge of hygiene and sanitation should be a part of the equipment of knowledge supplied by any educational system, but the health officer's primary interest begins only when this knowledge comes to play a part in community health through its effect upon the lives of individuals. Knowledge must affect conduct before this result can be achieved, and we might do well to consider the educational opportunities before us in the light of this fact.

It is not difficult to show that there is no direct and proportional relationship between knowing and doing. If there were, a man's character would vary exactly with his knowledge of right and wrong. It does not. If there were such a relationship doctors' children would never lack medical attention, health officers would have a perfectly regulated and hygienic daily schedule, and shoemakers' children would always have shoes.

Under what conditions does a knowledge of how to live become sufficiently vital to affect conduct? What is the foundation upon which we are to build our health education program? In the first place we must think of *training* rather than of merely *informing* the individual, for we can never be sure of credit for improving the public health through education until we have seen the newly acquired knowledge translated into habits of living. But interest is as basic as training is necessary. The people with whom we deal are not under military discipline and we cannot train them by command. We must, therefore, rely upon their interest to secure the necessary motivation, and it is difficult to create interest in the person whose mind is centered upon affairs remote from the subject in hand.

Would you be interested to go out to the street this minute and receive instructions from an expert in the art of backing an automobile? Probably not. There are only two times when you are interested in backing automobiles—when you are learning to drive in order to secure your license, and when you get stuck in a tight place and long for more skill. When are you interested in what will stop a baby from crying? On two occasions—when you are a crying baby, and when it is up to you to quiet one. When are you interested in the technic of infant feeding? First, when you are the infant to be fed, and again when it devolves upon you to prescribe the formula or prepare the modified milk for an infant's diet. Similarly there are two periods when people are primarily interested in learning how to live. The first period is that in which they are receiving their general training for life in the public school, and the second is the period in later life when they perhaps get into trouble because of lack of information. Similarly, on the basis of interest, popular health education may be divided into two distinct phases—the education of children and the education of adults.

We are too sanguine if we rely upon chance to evolve positive health and wholesome habit. Right method in other fields is painstakingly developed year by year. So in health matters, visual appeal, dynamic interest, and the precision of oft repeated process must be enlisted to promote the desired state of positive health.

The beneficial results of health training are immediate, and they become habitual and permanent in the communities which subject their children to a perfectly regulated and hygienic daily schedule.

I shall deal very briefly with the popular health education of adults. To secure their interest is both difficult and necessary. We should take advantage of the special health interests which they develop from time to time and the foregoing discussion of basic principles suggests a division of adult instruction into three varieties.

(1) *Personal contact* may be secured by public health nurses, physicians, and the workers at health centers or clinics. The information from these workers goes to a person seeking advice. It is authoritative, personal, applicable, and direct. It is the most expensive but by far the best method, since it trains people in the correct manner of living at a time when they are most amenable to training.

(2) The use of specially *timely information* is perhaps next in value. Examples of this type of instruction are seen in the sending of infant welfare booklets following birth registrations, the distribution of information for the control of communicable diseases at the time houses are placarded, or the use of the press and special pamphlets at a time of threatened epidemic. Here the personal contact is lacking but there is still the advantage of supplying information to particular individuals or groups when they are anxious to receive it and can immediately put it into practice.

(3) *Broadcasting* health information by pamphlets, lectures, exhibits, motion pictures, or wireless telephone, is the other variety. Here the elements of personal need, personal contact, and preformed interest are all lacking. This method carries the lowest per capita expense, but for the reasons mentioned it must also be least effective. The manner of presenting the information must be so unique and pleasing as to arouse interest and the message must be so strongly put as to motivate the individual. Otherwise, habits of living will not be affected. The motion picture is perhaps the best example of a method which has such high attention value that it robs the learning process of the "painfulness" which it possesses for most people. Showing a good health movie is like using fresh fruit medicinally. The spectators enjoy it and it is good for them. In general, however, the broadcasting method varies in its success according to the interest-bearing value of its mode of presentation and in proportion to the number of people in the community who are actually at work in putting the program across.

The health education of the child is an even more important task than the education of the adult. Here is the greatest opportunity for health teaching, and it has been too much neglected.

You may have been interested in

*An address delivered before the New England Health Institute, Hartford, Conn., May 4, 1922.

industrial health and the educational possibilities in industry. Suppose you had in your community one industry which employed one third of your total population. Suppose this organization were willing to give an hour a week of the company's time for training its employees in health. Assume the general manager to be interested in health, an old acquaintance of yours, and employed by the same people for whom you had worked. Suppose, further, that every one in the industry would go home and tell at the supper table the special health lesson they had learned each week. What would you think of that opportunity for health education in your community?

Such an industry really exists in your town. It is the public school. The school superintendent and the health officer are working for the same people, and the best results can be obtained by a liason between the health and school departments. The logic of this becomes apparent when we realize that health training for children is only a part of the complete school health program which includes disease prevention, the correction of defects, and health promotion.[1] The whole plan should be kept in mind in working out any detail, and the development of a complete plan with a clear and distinct understanding of the distribution of activities between the two departments is a much needed step which many communities have not yet taken.*

There are many reasons for the instruction of children in hygiene and sanitation. Such instruction would undoubtedly be worth while if for no other purpose than to provide the individual with such fundamental knowledge. We might hope and expect that somewhere in later life some of this knowledge would be found useful and therefore have an effect upon the public health, but if it can be shown that training in hygiene will improve the *present* health of the school population and strengthen the other activities of the school health program, then, indeed, it has a *raison d'être.*

It was a belief in such a possibility which prompted the experiment made by the writer in Somerville[2] and the studies now being made in Malden. We know that the child with incipient tuberculosis can be placed in a sanatorium where his food, rest, and daily schedule are properly arranged, and that without medication he gains in weight and strength. We know, also, that through the work in mouth hygiene children have been trained to take better care of the teeth. With these two facts in mind it seems highly probable that the school child may be trained in other habits of living and that such an improved regimen would favorably affect health. A belief in this possibility is strengthened if we understand the serious and implicit faith which the child places in what he is taught at school. The influence of the teacher and the activity of the other pupils in his grade is often a stronger force in compelling right action on the part of the child than the command or entreaty of the parent. In the public school alone do we have the aid of long continued example, practice, repetition and reiteration in driving home health truths.

Health Training Counts

The benefit of health training is demonstrable by growth records. This is not the place to go into a discussion of the right use and wrong use of standard weight tables. But at all events it is clear that growth is a normal process for the healthy child and when we found in Somerville that in a group of children receiving health training for the year only one pupil out of a class of thirty-nine failed to make an average growth gain, whereas in two control grades of the same size, where health training was not carried on, nine and sixteen children, respectively, failed to make a normal growth gain, it seemed clear that the adoption of health habits had produced the desired effect. The results of our present studies in Malden are not yet available for publication. We do know, however, that of 247 children who were below average weight for their age and height and who received health training, 118 were nearer the normal at Easter than in November. In a control group, where other conditions were the same but where no health training was carried out, there were 141 children below average weight, and of these only thirty-seven improved their condition in the time mentioned. In other words, among underweight children receiving health training 118 made a definite gain toward normal weight for their height and age, while 129 stood still or lost. In a similar group which did not receive health teaching thirty-seven made a gain while 104 stood still or lost.

The work carried out with these pupils was non-medical and untechnical. It involved the work of a well trained teacher who first enlisted the interest of the child in the positive factors of health, such as growth, strength and beauty, and then trained the children in the important health habits through classroom teaching, the keeping of habit records, the making of scrapbooks and the carrying out of other projects by the children, and occasional talks with some of the children about their own particular needs. Regular weighings and the observation by each child of his own growth record were important factors in stimulating the child to improve his mode of living. The health teaching was to some extent correlated with the teaching of other subjects in addition to the thirty to sixty minutes per week given to the subject itself.

We may hope to have from various parts of the country within the next few years ample confirmation of the value of health education in the public schools in terms of immediate health improvement. In any case we can hardly neglect the responsibility not only to take care of our physically defective children but also to provide a unified program of sound instruction for *all* children, with the very definite expectation of a considerable benefit to the entire group and a consequent reduction in the number of children who need special corrective treatment. A city certainly has much to hope for from a well arranged and properly supervised system of health instruction which deals primarily with motivation and health training for the first four grades and in a suitable fashion provides more organized instruction in health habits, bacterial cleanliness, disease prevention, community hygiene, first aid, home nursing, and applied physiology in the later years.

At the annual convention of the Baltimore and Ohio Association of Railroad Surgeons which was held in Chicago recently a campaign to inform railroad employees of the danger of contagious and social diseases were initiated.

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*Recognizing clearly that health instruction is only one phase of school health work, which includes many other important activities, it is not possible to discuss here either the nature or relative importance of the other phases. It would be most regrettable, however, if the necessity of limiting the scope of this discussion should educe the wrong conclusion that the writer believes health education is the one and only important activity in the school health program.

1. Report of the Committee on School Health Program of the American Public Health Association.

2. Health Teaching and the School Health Program. Am. Jour. Public Health, August, 1921.

Institutional Farms for Convalescents

By WALTER E. WRIGHT, Assistant Director, The Burke Foundation, White Plains, N. Y.

MANAGERS of new institutions and of established ones which are situated in open country or have unused land areas repeatedly bring up the question of more gardening or general farming upon their plots. The proposals, usually made by new members, appear enticing and it is often wondered why the superintendent and others with experience advise delay or caution in the matter.

A recent collection of figures, general statements, and personal opinions from those in charge of twelve institutional gardens and farms within our fifty-mile radius leads to the conclusion that they average an actual slight to moderate loss over a series of years. In most instances the agricultural accounts are not accurately kept, and precise incomes and expenditures are with difficulty separated from the general running expenses mainly because of the intricate, and proper, interactions with the other activities. The larger state insane and custodial places are not included in this study, but scanning and just interpretation of their reports will disclose surprisingly narrow margins of farm profit or loss, even though they are favored with abundant free or part-free labor.

Certain general facts partly clear the problem in the beginning. Small private farming on the average and under the favoring conditions of home-group and long-hour help yields good livings only, with but scant, if any, net income; most institutions in question are located suburban to cities and are wholly under the influences of high wages, high cost of material, short hours and the accepted inefficiencies of this environment; the soil available is apt to be "run-out." "Plant-enemy" and the various neighborhood depredations are here at their height. The rapid subsidence of the "war-garden" effort applies here; many factors have of course caused this, but the main one is that it didn't pay. The people are not slow to stop a money loss, nor in further developing a clearly profitable work near at hand. New managers of institutions who so often propose to "grow their own vegetables and save much expense" are measurably mistaken.

Why, then, do the older places continue to conduct gardens and general farming? Because of definite gains other than money-profit. Should new country health institutions, large or small, plan some tillage of their land? Yes; and mainly for the following reasons: "vegetables from our own garden," the "pure milk of our dairy," are phrases back of assured values and mean advancement for the institution; the sight and feeling of an abundance of these particular products induces in practice a better balance of institutional diet, as noted especially in the light of the newer food facts (cheaper vitamines); employees, too, appreciate the combinations and are more contented; a balanced amount of this land culture makes feasible a better staff for house and grounds care and the many intermediate duties; details of many advantageous "help" combinations, extending from garage and stable through land-care into heating plant and house service, will suggest themsleves. Tillage gives charm and finish to the neighborhood as compared with unkempt areas, and supporters of the establishment like to see it in such full-rounded adaptation; tax exemption not infrequently hinges upon the full or part use of the property for the charitable and remedial purposes, and good-feeling may be upbuilt by gifts of surplus product in season to neighboring charitable organizations. But of more importance, perhaps, than any of these is the occupational and mental therapy which farm and garden may furnish wherever the patients are convalescent or but partially handicapped, physically or mentally.

It is not practicable to try to present accounting figures of the institutions in the present inquiry, further than as summarized in the beginning. A very large private hospital for mental diseases, having a long-established organization with large acreage, reported profits one year and losses another, one made first claims of big profits which analysis mainly dissipated (a common error); milk production in the larger plants seemed to present most general satisfaction. Each place has found by experience a suitable ratio of garden to other activities, and none would quit the procedure because the sure auxiliary advantages outlined above outweigh moderate monetary losses.

The Burke Foundation's Convalescent Home, maintaining 300 patients and 100 employees upon a sixty-acre plot has, after seven years' experiment and fairly accurate accounting, settled to a ten-acre farm-garden with no live stock. Monetary profit of a few hundred dollars per year is figured for the whole period, but this fails to take account of the various depreciations, insurance, etc. Value of the yearly product has been from $3,000 to $5,000; about one-third of all the fruits and vegetables used are thus supplied. The organization has been simplified until one head has charge of the garage, gardens and grounds. The obstacles to precise gardening accounting are well illustrated here by the frequent changes of men and horses from garden to lawn-care,

convalescent farm.

plies, etc. Many patients working moderately one or two hours per day have benefitted health but not farm expenses to any extent; a part-pay occupation for some as they gain strength has proved good mental and physical therapy only.

Cardiac adolescents under supervision are strengthened and group-trained by garden work.

Kinds of crops raised will depend upon land, labor, possible interacting organization and equipment, and the appetites and needs of the particular patients accommodated. A list for this zone may be approximated: lettuce, sweet-corn, onion, radish, tomato, carrot, turnip, parsnip, parsley, cabbage, celery, rhubarb. Potatoes are best bought unless exceptional conditions obtain. Asparagus and strawberries may come into favorable schemes.

The technic does not always closely follow that of the market gardener but aims to arrange crops so that horses can do most of the work, the labor-cost being ever paramount in a suburban environment. Artificial fertilizer is used freely in lieu of cheap barnyard manure; plowing under fertilizer crops is worthwhile at times.

A very common cause of dissatisfaction and partial failure is lack of hearty and painstaking cooperation between dietitian and gardener, resulting in wrong plantings and crop rotations, surplusage, kitchen waste, expensive seasonal lacks, and at times unbalanced diets; someone placed over those in charge of each section obviates this. We concur heartily with the institutions canvassed in saying that we would continue the gardens even at a moderate financial loss for the sake of the health and contentment and sentimental gains accruing thereby, as indicated previously.

Unusual Human Foods

THAT the civilized human being has by no means exhausted the possibilities of food variety is shown by Professor Albert M. Reese of West Virginia University in *The Scientific Monthly*. Many animals make acceptable food but are not eaten for reasons of prejudice. Among the mammalia which would make acceptable food for men are mentioned monkeys, peccary or bush-hog, opossum, woodchuck, muskrat, whale.

That the English sparrow might well grace the festive platter is the contention of the writer. They are easily prepared and when properly roasted taste as good as the famous reed-bird. Eating the birds would reduce their numbers and consequently minimize them as a pest.

Edible birds' nests, formed of the dried saliva-like secretions of birds, when cooked are considered by the Chinese to be a great delicacy. Experimental preparation, however, revealed only a gelatinous mass of little taste.

Reptiles as an article of diet have always aroused strong prejudice. Alligator meat, however, has been served much as breaded veal cutlets and enjoyed by civilized humans of discriminating taste. Turtles are an accepted food while turtles eggs are extensively used in the tropics.

Prejudices against amphibia as food are also marked. Although many consider frogs' legs a delicacy, they will not consider eating the larger salamanders, or alligators. Fish is a readily accepted article of diet, but there is still a popular prejudice against sharks; and whereas lobster is liked by many, crayfish is not touched.

Fresh water mussels might also be added to the diet of the average person. Owing to the pollution of the streams in which they live, they should always be cooked.

Stefansson, the arctic explorer, says that the reluctance of people toward eating untried articles of food is oftentimes commensurate with their social status. "'Well brought up' men, used in their homes to a large variety of foods both domestic and imported, take very readily to any new thing such, for instance, as seal meat," he says. "But men 'poorly brought up,' and used only to half a dozen or so articles of food in their regular diets, are generally very reluctant to try a new food unless it has been represented to them in advance as an expensive or specially delicious thing." The man of the laboring type feels degraded when compelled to eat the food of 'savages,' states Stefannson, while the man of intellectual type is appealed to by the mild flavor of adventure in experimenting with 'native food.' Eskimo women were much slower to try new kinds of food than were the men, he further discovered.

Man-Made Malaria Hard to Eradicate

The task of eradicating malaria, says the United States Public Health Service, has been made doubly hard by the continual creation of fresh mosquito-breeding places by impounding water either intentionally or unintentionally—for instance, in the course of highway or railway construction. Owing to this, a considerable portion of the malaria in the country may be termed "man-made." Assistant Surgeon General Carter has found that probably three-fourths of the malaria in a district in eastern Virginia came from such artificial pools and swamps.

Man-made malaria is of special importance at present because of the recently enacted Federal highways act, which provides many million dollars for building additional good roads in the South. The specifications require that the culverts on these roads shall be so placed that they will completely drain all wet areas above the culvert entrance and that all borrow pits or excavations made along the roadways shall be filled or properly drained. No road, however necessary for travel, can be called good if it interferes with proper drainage.

Social Measures in Venereal Disease Control*

Wherever Civilian Responsibility Has Been Assumed Control Has Followed

By VALERIA H. PARKER, M.D., Executive Secretary, U. S. Interdepartmental Social Hygiene Board, Washington, D. C.

THE trend of modern medicine is toward the development of prevention of disease rather than toward placing the emphasis solely on diagnosis and treatment after exposure. In no field of medicine has the value of preventive measures been so strikingly proved as in the field of venereal disease control. The development of the protective program has been defined under the general term "Social Hygiene." It was not so long ago that the words "social hygiene" were considered a term to be spoken with bated breath. The words "syphilis" and "venereal disease" were banned from the more public prints which were available to everyone. Newspapers for example, would not carry any story in which a phrase such as "social disease" was used. But times have changed and we are in a new era of frankness which will lead to a better understanding of life, and which will remove the blanket of ignorance, prejudice and fear which has enshrouded the subject of sex. In place of the old policy of silence there has appeared an increasing recognition that social health is in a large part dependent upon the understanding and protection of those forces upon which family life and parenthood depend. The guarding of those very life forces is the field of "protective social measures," a field which should command the earnest study and effort of all groups bending constructive energy toward forwarding human welfare and happiness.

In order to appreciate the advance evidenced by the present aspects of the social hygiene movement, it is well to pass hastily over its history. It was started first purely on moral grounds by such organizations as the National Women's Christian Temperance Union, the Purity Federation, and other organized groups of far seeing and fearless men and women who based their beliefs in a single standard of morals entirely on ethical grounds. It was many years before the silence of the medical profession was broken by Dr. Prince Morrow. By written and spoken word he denounced those physicians who permitted innocent persons to become infected with venereal disease rather than to violate the principle of medical ethics known as professional secrecy.

His book "Social Diseases and Marriage" did much to enlighten the lay mind as to the magnitude of the venereal disease problem and the needless waste of health and life through blind ignorance. Dr. Morrow was the founder of the society of Moral and Sanitary Prophylaxis, and of the American Social Hygiene Association which has carried the movement into its present phase.

In 1914 the Bureau of Social Hygiene through Dr. Abram Flexner published a scientific investigation of the segregated vice districts in European countries. These findings showed the utter fallacy of attempting to license and give so-called sanitary protection to vice.

As a result of this study many of our larger cities appointed vice commissions. Following their investigations and recommendations a number of notorious segregated districts were closed. The apex of the pre-war movement against vice and its resulting diseases was reached when the organized physicians of the country proclaimed by formal resolution that continence for men is not incompatible with health. We approached the crisis of the world war with a quickened and aroused national conscience.

During the long hot summer months of 1915 when the United States troops were mobilized on the Mexican Border large numbers of men were stationed near wideopen towns where liquor was freely sold and where the lowest type of brothel existed. Few opportunities for wholesome recreation were available. No libraries where books could be had, no place for meeting a woman relative, nothing of this nature was provided the troops.

In command of the men were two classes of officers who may be said to typify fairly well public opinion as it is found today. The old line army officer believed the demand for prostitution to be a natural one. He bent his energies mainly toward the provision of medical facilities for disinfection or early treatment after illicit intercourse. The more modern commander, however, believed in reducing disease by preventing exposure and was concerned with the morale of his troops as well as with the physical damage of the brothel.

In this latter group was an officer from Brooklyn who became much concerned when he learned of the flagrant vice conditions in the town near which his regiment was stationed. He first called upon the mayor and city officials requesting them to close the saloons and brothels to the United States troops. These officials smiled and shrugged their shoulders, stating quite frankly that they expected to make large sums of money while the United States troops were there and certainly would not close the places in question.

This officer took military action upon his return to camp. He ordered military police guards to be stationed around saloons and brothels, declared these places "out of bounds" and told the guards to prevent any of the boys from entering the places. This particular officer brought back his entire regiment without a single case of venereal disease. It was an unheard-of record, and his methods immediately attracted attention in Army medical circles, as venereal disease was the worst enemy the army then faced.

Reports as to these conditions on the Mexican border were made by Mr. Raymond Fosdick, later Director of the Commission on Training Camp Activities of the War Department, and Dr. M. J. Exner of the Y. M. C. A. Dr. Exner's report entitled "Prostitution on the Mexican Border" may still be secured through the American Social Hygiene Association, of which Dr. Exner is now educational director. His report shows how large numbers of immoral girls and women followed our troops to the border, and how in some instances they were housed in shacks built with

*Read before the New England Health Institute, Hartford, Conn., May 1-6, 1922.

United States Government funds, certain officers setting aside women for their own use.

The above facts and the alarming increase of venereal disease among troops already engaged in the World War were factors in leading our Government when we entered the war to become the first in the history of all nations to adopt a program of moral protection for the men of the fighting forces which made no compromise with vice. The main points in that government program have a direct application to the social hygiene problem as it now stands and to the field of "protective social measures" today. These points are:

(1) *Education.*—Realizing that the majority of the men of the fighting forces had received no constructive sex education, the Government, through lectures, moving pictures, and literature endeavored not only to teach the dangers of venereal disease but to lay stress upon the fact that continence is compatible with health and fosters greater virility.

(2) *Law Enforcement.*—Definite zones were established about military camps and naval bases within which all sale of liquor and commercialized prostitution were prohibited. A Committee on the Protection of Girls was established. Trained and experienced women were sent to military and naval centers to guard the careless, thoughtless girls who flocked to those centers as well as to detect the professional prostitute.

These women were able to avert many a tragedy. Where tragedy had already begun, the circumstances were frequently mitigated. Since many states had no provisions for the detention of delinquent women other than the jail, where there were no facilities for moral or physical rehabilitation, a Committee on Women's Reformatories was established through which government funds were expended in assisting the states to provide proper detention facilities.

(3) *Medical Measures.*—During the years immediately prior to the war improved methods of diagnosing and treating venereal disease had become known to science. This resulted in great benefit to the armed forces. For those who were uninfluenced by educational measures, stations for early treatment or prophylaxis were provided in the hope of decreasing the incidence of venereal disease.

Some of the medical officers were so impressed by the marked reduction of venereal disease that they ascribed it entirely to the prophylactic station. A prominent surgeon recently advocated at a public meeting in Washington, D. C. the establishment of civilian prophylactic stations, recommending that one be placed in every High School and College. I feel confident that his recommendation will not receive popular support.

(4) *Recreational Measures.*—Recognizing the need of wholesome outlets for the splendid energies of the young men of our fighting forces, the United States Government secured the assistance of seven voluntary national organizations in the promotion of recreational and athletic facilities. Libraries, club houses, theaters, hostess houses for meeting mothers, wives, or sweethearts were erected inside the big camps. Clean amusements were brought directly to the men, for the first time in the history of the Army.

A Civilian Responsibility

That this comprehensive program had weak points is unquestionably true. It came too late in the lives of many who had already formed habits of incontinence. There were some officers who did not believe in the program and who emphasized the value of the prophylactic system rather than the desirability of continence. The temptations overseas were more open and flagrant than in most of our own communities. The fact remains, however, that the United States sent into the World War the cleanest army of men in body and in character known in the history of warfare.

Unfortunately, this was not the result of American training in home, church, and school. The draft figures which revealed so many of our national weaknesses showed 130 out of every one thousand of our drafted men to be infected by venereal disease. Examination at the time of discharge showed only one-sixth as many men to have become infected after entering the army and navy as were infected at the time of enlistment.

This emphasizes the fact that the problem was and still is, essentially a civilian responsibility. It is one which every intelligent and right thinking citizen must aid in solving, if we are to gain permanent results. We must promote wholesome and constructive instruction of parents, both present and future; the introduction of sciences in elementary form in the grammar schools; provision of a proper sex vocabulary to replace the ever present vocabulary of filth and obscenity common to the street and school yard.

While we are concerned with the low standard of morality evidenced in certain public amusement places such as dance halls and moving pictures houses, we must not ignore the fact that recreation is a vital necessity to the young. The provision of increased recreational facilities of a wholesome character under proper supervision is a present day problem.

The United States Interdepartmental Social Hygiene Board is one of the agencies established for the promotion of a nation wide program for the solution of these problems under discussion. It was established as a special government bureau in July, 1918. The members of the Board are the Secretaries of War, Navy and Treasury, and the three Surgeons General. The Surgeon General of the Army is at present Chairman of the Board. As a result of its work the army rate has been reduced from ninety to sixty-two. Navy authorities have stated that the Board's work is largely responsible for the drop in navy rates. Eighty-three red light districts have been closed during the past year as sources of infection. Cities and citizens have been put on their guard, educated to the dangers of social diseases.

At the meeting of the Interdepartmental Social Hygiene Board held in September, 1921, for the purpose of determining the amount of money to be requested from Congress for continuation of the work during the coming year, information was given that the work now being conducted by the Board would be provided for in the new Department of Public Welfare. The members of the Board accordingly voted not to ask for an appropriation. It has now become evident that the Department of Public Welfare will not be organized before the end of the present fiscal year, and bills have been introduced in Congress to carry on the work through the Department of Justice. Unless the bills are passed before June 30, on that date the active program of the Board must cease although the Board itself will still exist officially under the Chamberlain-Kahn Act which also established the Venereal Disease Division of the United States Public Health Service to which has been appropriated $225,000 for allotments to state boards of health in promoting the Medical control of venereal disease during the coming fiscal year.

The greatest gain made during the past four years of intensive work is the breaking down of public apathy and silence, and the increasing number of intelligent men and women who are able to face social hygiene problems frankly, determined to carry the program against ignorance and vice to a permanent completion.

The Anti-Plague Campaign in Pensacola*

Rat Proofing and Traps Employed in Combating Rodent Plague Carriers

By R. R. SPENCER, Passed Assistant Surgeon, United States Public Health Service, Washington, D. C.

BUBONIC plague has been endemic in California since 1900 and in New Orleans since 1914. During the month of June, 1920, the disease broke out at three other seaports of the United States, namely, Galveston, Beaumont, and Pensacola. Within a few days, the Public Health Service, in cooperation with the respective state boards of health and local health departments, began suppressive measures at each place. The general policies and the methods employed were essentially the same at each port. The following account only describes the progress of the anti-plague measures at Pensacola, for a little more than a year.

On June 11, 1920, the federal quarantine officer at Pensacola, Florida, reported a suspected case of bubonic plague to the Surgeon General of the United States Public Health Service. The patient was described as becoming suddenly ill with a chill, followed by high fever and delirium, later presenting a very large swelling in the left femoral region. The swelling was aspirated and smears showed organism with typical morphology of *B. pestis*. Two guinea pigs were inoculated with the aspirated material and subsequently died, revealing typical pathological lesions of bubonic plague and the diagnosis was verified by complete bacteriological confirmation. Since plague had never been known to occur in Pensacola before, it was of great importance to determine whether the infection had been contracted locally or whether the patient had brought it in from some infected port such as New Orleans or Vera Cruz. The history showed that the patient had lived all his life in Pensacola and had not left the city or been aboard a ship in the harbor for the preceding six months. These facts together with the occurrence of a second case on June 15, and a third on June 18, appeared to be ample evidence that the infection was coming from local rodent plague foci.

At the request of the Florida State Board of Health the Public Health Service assumed charge of the situation and the laboratory car "Hamilton" which was being used in conducting a rodent survey at Mobile, Alabama, was ordered to Pensacola with its entire equipment and personnel trained in plague work. The car arrived in Pensacola on June 17, and facilitated the immediate institution of plague suppressive measures.

Upon reviewing the city death records, it was found that a negro boy, aged sixteen, had become suddenly ill on May 31, and died two days later. Further investigation indicated that the case might have been plague. Accordingly, on June 20, the body was disinterred and the autopsy revealed

Trapper's complete outfit, showing the steel snap trap, wire cage trap, etc. Detailed directions were given to trappers and bounty offered for each rat in addition to wages.

a left femoral bubo surrounded by extensive hemorrhagic injection. Organisms morphologically resembling typical *B. pestis* were found in the smears, but animal inoculations proved negative, possibly due to the bactericidal action of the embalming fluid. A more complete history afterwards obtained from the family and the attending physician established the diagnosis of plague beyond a reasonable doubt. The tenth and last human case occurred August 31, just three months after the first case and two and one-half months after the inauguration of plague suppressive measures.

The analysis of the ten cases of plague has not yielded any very conclusive results, but it may be mentioned that all were males and four were teamsters; that the diagnosis in each case was confirmed by the usual bacteriological methods; that two presented a cervical bubo, all the others being femoral and that there developed no contact cases or cases of the pneumonic type.

Each human case was isolated in the home, care being taken that rats the fleas were eliminated, so far as possible, around the premises. No attempt was made to isolate all patients in one building because the city possessed no adequate isolation hospital and because the bubonic form of plague is practically non-contagious from man to man.

Very nearly all eradicative measures center around the location of plague foci. The location of human cases usually indicates the existence of an advanced rodent focus either at the patient's residence or place of employment. In Pensacola, foci were found at the place of employment in the majority of instances. Although there were many definite rodent foci from which no human cases developed, epidemiological data as well as the history in each strongly pointed to one or more of the rodent foci as the source of human infection. This fact supports the observation made by the Indian Plague Commission,† and confirmed by experience in all subsequent epidemics that plague is primarily a disease of rodents and only accidentally and secondarily a disease of humans. The epizoötic continued long after the disappearance of the epidemic in spite of the intensive and continued destruction of rodents.

Thirty-six rats were diagnosed in the laboratory as having plague, or about .2 per cent of the total number of rats examined. These rats were recovered from twenty foci. Whenever a plague rat was discovered, an inspection was made of the

*Approved for publication by the Surgeon General.

†Journal of Hygiene, Supplement, 1909.

ises where it was trapped. Such a location constitutes a plague focus and demands immediate attention. It was customary to treat foci either by fumigation with hydrocyanic acid gas, by demolition and destruction of rat harbors, by intensive trappings, by the use of a pulicide emulsion as a spray for ground areas or by two or more of these methods combined.

Demolition and destruction of rodent harbors is probably the most effective and quickest way to successfully attack a plague focus, but is, unfortunately, difficult and expensive in many instances. Treatment of foci, therefore, varied according to the practicability of carrying out these measures. Because of this, many buildings which were known foci and others which harbored many rats could not be considered clear of plague until many months afterwards when ratproofing of such structures was finally secured, sometimes only after court procedures. In this connection, it is interesting to note that three of the last four plague rats recorded were captured during the ratproofing of a grocery store under the floor of which they had remained protected for months. Fumigation will not kill rats burrowed in the ground under floors, nor is it feasible to destroy fleas in underground nests either by the use of fumigation or a liquid pulicide.

The methods of rodent reduction employed in this campaign in the order of their importance were, (a) ratproofing of buildings and premises, (b) trapping, (c) cutting off the rodent food supply, (d) poisoning.

It must be remembered that in a community of thirty thousand people, complete extermination of rodents cannot be expected with our present known methods; yet, by means of an intensive campaign and the wholehearted assistance of the citizens, there is no reason to doubt that the number of rodents may, in time, be reduced to such an extent that they will become a negligible factor in the propagation of plague. While ratproofing of all structures is believed to be the most effective and permanent method of rodent reduction, it requires a great deal of time and is a heavy financial burden on property owners. Moreover, it cannot be instituted on a large scale at all without the enactment of legislation and even then progress is necessarily slow. For these reasons, the immediate suppression of plague must largely depend upon trapping, poisoning, and the removal of food from rodents.

Ratproofing Buildings

A ratproofing ordinance was passed by the city commissioners of Pensacola on July 8, 1920. This ordinance was modeled after a similar one in New Orleans, with a few modifications suitable to local conditions. For a detailed description of the proper methods of ratproofing, the reader is referred to the Public Health Reports of April 29, 1921.

It is sufficient for our purpose to state here that buildings are divided into two main divisions according to their uses: Class A and Class B. Class A includes food depots and all buildings where foodstuffs are stored,

Type of building flat on the ground and with defects in the area wall showing conditions which provide ideal homes for rats.

handled, or prepared. Class B includes residences and all other buildings not in Class A. The chief distinction in the manner of ratproofing is that Class A structures are required to be ratproofed by means of a concrete floor at least four inches thick and protected by an area wall at least eighteen inches in the ground, while Class B structures may be ratproofed as Class A or by elevation on pillars eighteen inches above the ground and the filling of the double walls with brick or other material impervious to rats. In the elimination of rodent harborages in a community, the ratproofing of Class A buildings is obviously far more important.

There were approximately 7,200 premises or main buildings in Pensacola. Of these, there was a total of 414 food depots. During the year 368 or 88.8 per cent of the Class A buildings were completely ratproofed. Twenty-four remained incomplete, having installed concrete floors but possessed minor defects which prevented their being listed as complete.

Three thousand eight hundred and nine or 55.6 per cent of the Class B buildings were ratproofed during the same period. Over one-half of the remaining non-ratproof structures were well elevated residences which required only minor repair to bring them within the requirements, and practically all of them were in the non-infected area of the city. The tabulation given below shows the entire amount of ratproofing work accomplished to June 30, 1921:

Sq. yds. concrete floor laid	40,791
Linear feet area wall installed	58,767
Linear feet flashing installed	6,901
Sq. yds. planking removed	40,414
Sq. yds. wire floor installed	15,388
Number of food depots	414
Number completely ratproofed	368
Per cent ratproofed	88.8
Per cent non-compliant	3.8
Number of structures other than food depots	6,868
Number completely ratproofed	3,809
Per cent ratproofed	56.6
Per cent non-compliant	20.4
Total number of premises ratproofed	4,195
Average cost per premise	$91.06
Total cost of ratproofing	$383,003.00

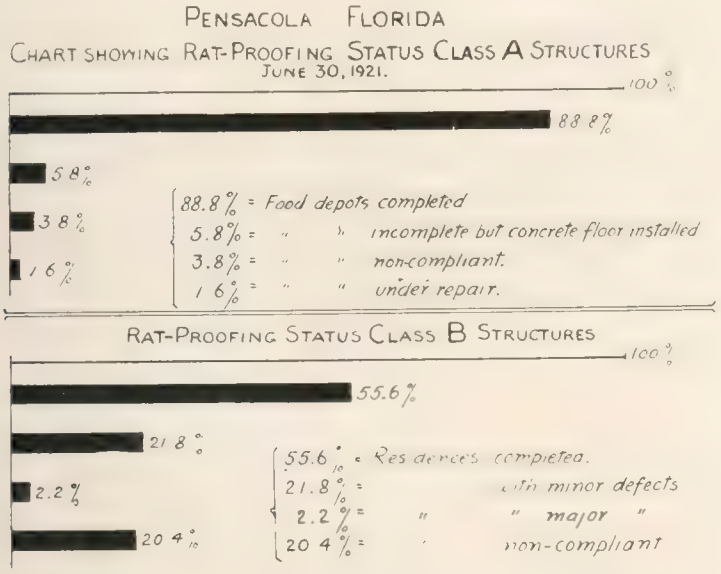
Trapping Another Means

Trapping operations began on June 18, 1920, and continued intensively for more than a year. The entire city was divided into trapping areas of about four blocks each. Trappers were required to work within their own districts, to carefully tag each rat caught, to place them immediately in a purse string canvas bag or bucket with a tight fitting cover, and to dip all rats in oil before bringing them into the laboratory—this last, in order to kill fleas.

There are many different kinds of traps and devices for capturing rodents but success is due more to the diligence and industry of the trapper than to the kind of trap used. Wire cage traps, snap traps, and steel traps were the varieties used throughout the year. Trappers were closely supervised and every detail carried out to make their work efficient. Each trapper was provided with a complete outfit as shown in one of the illustrations. Besides this equipment, some trappers used terrier dogs and trench spades for the destruction of underground nests of Norway rats. From time to time, observations were made upon the habits of rats and the best method of trapping.

As a result of this, the following conclusions rave been reached, the majority of which are supported by the experience of other campaigns. (1) Experience in this campaign indicated that more efficient trapping can be maintained by offering to the

trapper bringing in the highest catch each month a prize of about ten dollars besides his regular salary and bounty of ten cents per rat. (2) The number of rodents in any community or neighborhood is determined by the available food supply. Excellent rat harborages have been discovered without any rats because there was no nearby food available. On the other hand, very poor harborages affording slight protection are often infested with rats because careless and insanitary conditions have provided a plentiful food supply. (3) Rats have been observed coming in and out of doorways of food depots after the buildings had been ratproofed. This demonstrates the necessity of flashing all doors to such buildings with sheet metal and closing tightly at night when unoccupied. (4) Large numbers of rats have been trapped in ratproofed depots whenever nearby non-ratproofed property furnished comfortable harborages. (5) In the neighborhood of ratproofed food depots rats are not infrequently found under the sidewalks whenever the pavement does not extend out to the curbing or back to the wall of the buildings. (6) Rats that have become trap-shy to ordinary snap traps and cage traps have been successfully caught by placing camouflaged steel traps in their runways. (7) The more a trap is concealed, the better chance of making a catch. After long unsuccessful trapping, rats have been caught by tying up tightly a baited cage trap in a burlap bag. The rats are then less suspicious and will cut through the bag in order to reach the bait. (8) Although Norway rats are burrowing animals and are not considered good climbers, they have been trapped on the second floor of buildings and their nests with young have been found in the double walls of elevated buildings. (9) It is believed Norway rats are filthier in their habits and prefer dirtier surroundings than do the house rats, *M. Rattus*. More fleas per rat have been found on *Mus Norvegicus* than on *Mus Alexandrinus* or *Mus Rattus*, and the *Mus Norvegicus* has a stronger tendency to cannibalism.


PENSACOLA FLORIDA
CHART SHOWING RAT-PROOFING STATUS CLASS A STRUCTURES
JUNE 30, 1921.
100 %
88.8 %
5.8 %
3.8 %
1.6 %
88.8 % = Food depots completed
5.8 % = " " incomplete but concrete floor installed
3.8 % = " " non-compliant.
1.6 % = " " under repair.
RAT-PROOFING STATUS CLASS B STRUCTURES
100 %
55.6 %
21.8 %
2.2 %
20.4 %
55.6 % = Residences completed.
21.8 % = " with minor defects
2.2 % = " " major "
20.4 % = " non-compliant

The protection of food from rodents is an effective supplementary method of deratization when universally carried out. The very first step in this direction is the passage of an adequate garbage ordinance, especially when the collection and disposal of garbage is lax. Such an ordinance was passed in Pensacola on July 6, 1920, and in order to insure better collection and disposal extra wagons were put in commission by the city authorities. While this is the first step to be taken by the community as a whole, results always hinge upon the enforcement of the ordinance and the amount of cooperation displayed by the citizens.

Poisoning is another supplementary measure which will greatly aid in the reduction of rodents when discretely used. In the latter part of the campaign, 41,877 pieces of poisoned bread were placed on the city dumps, in gullies, ravines and other open spaces where there was considerable undergrowth. The preparation used was an arsenic paste. Within a few days after the distribution of the poison, about twenty-four rats were found dead. A larger number would probably have been recovered had not ratproofing and trapping been going on for some months. As a cheap efficient poison and less repugnant to rats than most others, the U. S. Bureau of Bilogical survey recommends barium carbonate.

Quarantine measures in plague work are directed against the migration of rats rather than against freight and persons. All cars were required to be ratproofed before loading, to be loaded only in the daytime, and the doors kept tightly closed at night. In the ratproofing and inspection of 5,623 freight cars only three rats were found. This small number can be explained by the fact that a very small percentage of outbound freight at this port consists of foodstuffs. Freight inspection was discontinued after December 31, 1920, when the

Even with the completely ratproofed buildings, sliding doors flashed with metal [illegible] snugly in the groove of the concrete floor are necessary to keep the rats from coming in and out.

epizoötic was well in hand and all outbound freight sheds had been ratproofed.

Maritime quarantine was under the supervision of the division of foreign and insular quarantine of the Public Health Service. All vessels leaving the port were required to be fumigated just before departure. Vessels mooring at local docks were required to fend off four feet and all mooring lines to have properly placed rat guards. Gangplanks were raised at night. These restrictions were removed August 15, 1921.

Publicity consisted briefly of special articles for the daily papers, lantern slides for the moving picture houses, window demonstrations of plague suppressive measures in the business section of the city, distribution of hand bills to housewives, and other publicity connected with the inauguration of "Clean-Up Week" during March, 1921. The salient facts upon which emphasis was at all times made were (a) that plague is primarily a disease of rodents; (b) that plague is carried from rats to man by fleas; (c) that rats and fleas thrive in filth; (d) that plague is, therefore, indirectly dependent upon filthy conditions; (e) that cleanliness and sanitation will prevent plague, as evidenced by the fact that it seldom develops in the better and more sanitary residential districts of a community; (f) that it is within the power of every individual householder and property owner to rid his premises of rats and fleas, if he will; (g) that rats are dependent for their existence upon the carelessness with which people permit food, garbage or animal feed to become available to them; (h) that the U. S. Public Health Service will gladly instruct and assist in ridding premises of these pests.

At the present time, no plague rats have been caught in Pensacola for more than seven months, and it is hoped the disease has been eradicated. Ratproofing, trapping and examination of rats are being continued on a smaller scale by the state and local health authorities.

Malaria Incidence in the Panama Canal Zone

By Our Latin-America Correspondent

STATEMENTS having appeared in the public prints to the effect that recent economies in the administration of The Panama Canal as the result of the recommendations of the Special Commission have resulted in an epidemic of malaria and fever among Panama Canal employees, The Nation's Health requested its special Latin-America correspondent to make an investigation of malaria conditions as they actually exist. This article which appears below was submitted to the Governor and to the Acting Chief Health Officer of the Panama Canal, and has received the approval of these officials. The data contained herein may therefore be considered as authentic.

The New York *Times* of July 5, 1922, quotes Mr. William C. Hushing, representative of the Canal workers in Washington, to the effect that: "It is time that the American public awakes to the fact that the wonderful sanitation program which General Gorgas installed on the Canal zone has been destroyed. The Panama Canal Commission which reported to the Secretary of War in October, 1921, said that the Canal Zone was too healthy and that sanitation should be reduced until the death rate was increased to that of certain cities in the United States. They ignored the statement of the employees that the death rate was low largely because sick people were returned to the United States."

After consultation with the Governor of the Panama Canal and the Acting Chief Health Officer, Dr. D. P. Curry, I am of the opinion that "the wonderful sanitation program which General Gorgas installed in the Canal Zone" has not been destroyed. On the contrary, there is every evidence that the program laid down by General Gorgas has been and is being advanced in consonance with the best ideals of modern sanitary science. Many of the sanitary operations which were formerly necessary, have been discontinued because of the fact that permanent sanitary improvements have rendered them no longer needed. The policy of cutting grass about quarters which formerly cost the Health Department of the Panama Canal approximately fifty thousand dollars a year has been discontinued since it is known that malaria mosquitoes do not breed in grass but in collections of water.

The statement quoted above to the effect that there is an epidemic of malaria and fever among the Canal employees is not substantiated by the files of the Chief Health Office. The following table, which was prepared by your correspondent, very clearly indicates this. (Table A).

An analysis of this table shows that the rate for all employees was less in January, March, and April of 1922, than during the corresponding months of 1921. The rates for February, 1921 and February, 1922, are practically the same. The only difference is seen in the rates for May, June, and July, of 1922, which are slightly greater than those for the corresponding months of 1921. An analysis of the rates according to "Gold,"—that is, white, and "Silver,"—that is colored employees, discloses the fact that during the months of January, February, April, June, and July, 1922, the rate was lower among gold employees than in the corresponding months of 1921, and that for the silver employees the months of January and March, 1922, was less than in 1921; while the rates for February in the two years were practically the same. It is also evident from the rates for May, June, and July

Table A.—Malaria Incidence Per 1,000 Employees. The Panama Canal

Month	1918	1919	1920	1921	1922
January	2.53	2.95	2.62	1.52	1.08
February	2.54	3.57	1.51	1.21	1.29
March	2.03	4.34	1.57	1.19	0.56
April	2.24	1.66	0.22	0.37	0.28
May	1.86	2.72	0.36	0.72	1.65
June	1.50	3.53	2.44	1.69	1.96
July	1.66	7.04	1.97	1.89	2.21
August	1.93	3.15	2.75	1.87	....
September	0.98	2.06	2.31	1.13	....
October	0.76	1.03	2.36	1.01	....
November	1.51	1.48	1.25	0.88	....
December	3.40	2.00	1.17	1.37	....

TABLE B.—MALARIA INCIDENCE PER 1,000 EMPLOYEES, THE PANAMA CANAL

	Total Employees	Gold (White)	Silver (Black)	Total Cases Employees	Rate Per M	Total Gold Cases	Gold Rate Per M.	Total Silver Cases	Silver Rate Per M.
1921									
January	18,969	4,145	14,824	29	1.528	10	2.41	19	1.28
February	18,111	4,043	14,068	22	1.214	7	1.75	15	1.06
March	16,682	3,991	12,691	20	1.198	8	2.00	12	0.94
April	16,070	3,731	12,339	6	0.375	4	1.07	2	0.16
May	13,837	3,571	10,266	10	0.722	4	1.12	6	0.58
June	13,541	3,506	10,035	23	1.697	11	3.13	12	1.19
July	13,683	3,419	10,264	26	1.899	6	1.75	20	1.93
August	12,818	3,259	9,559	24	1.873	6	1.84	18	1.87
September	12,475	3,127	9,348	14	1.122	5	1.59	9	0.97
October	11,828	3,061	8,767	12	1.014	2	0.32	11	1.25
November	11,248	2,906	8,342	10	0.889	1	0.34	9	1.07
December	10,927	2,759	8,168	18	1.647	7	1.64	11	1.09
1922									
January	11,014	2,691	8,323	12	1.08	4	1.48	8	0.97
February	10,795	2,640	8,155	14	1.29	5	1.89	9	1.09
March	10,568	2,628	7,940	6	0.56	3	1.14	3	0.37
April	10,388	2,598	7,790	3	0.28	0	0.00	3	0.378
May	10,272	2,557	7,715	17	1.65	4	1.56	13	1.67
June	10,176	2,553	7,623	20	1.96	4	1.56	16	2.09
July	9,942	2,569	7,373	22	2.21	4	1.55	18	2.44

of 1922 that the slightest increases which occurred among all employees were due to an increased rate of malarial infection among the silver employees; this is explained by the fact that there has been nearly a 50 per cent decrease in the number of employees during the past 19 months; the gold employees work on a full time basis, but many of the silver employees work only for short periods when there is work in connection with shipping; during the remainder of their time these employees are not under the control of the Panama Canal and visit unsanitated areas. This body of occasional employees is, however, carried as employees. The bulk of the "silver" cases, however, came from the Mount Hope district where new colored settlements have been opened up within the past year. The houses occupied by these laborers were screened and of approved sanitary pattern, but the employees who moved into them had previously been residents of Colon where houses are not screened nor are screens necessary in that city. These employees, therefore, were not aware of the necessity of the screens and in their ignorance tore them out, with the result that malaria occurred among them. These screens have been replaced and every precaution is being taken to see that they are maintained in perfect condition. It is believed that this measure will effectually control malaria at Mount Hope.

Table B, which sets forth the malaria incidence per thousand Panama Canal employees for the years 1918, 1919, 1920, 1921, and 1922 up to August 1, shows very clearly that the malaria rate for the year 1922 is far below the average rates for the same months of previous years, and it may therefore be concluded that an epidemic or an unusual prevalence of malaria does not exist on the Panama Canal Zone. As a matter of fact, the malaria rates in the Panama Canal Zone are much less than in any part of the United States where malaria exists (Table B).

Limitations and Authority of Local Health Boards

By Massachusetts law powers so great are conceded to the local boards of health that they make the board the most powerful branch of the government of which it is a part. Some of the powers and limitations, and some of the difficulties of determining the meaning of the law are fully discussed by Dr. Francis George Curtis, chairman, Newton Board of Health, in the *Boston Medical and Surgical Journal* of May 11. The chief functions of a board of health Dr. Curtis classifies under three major headings: nuisances, protection of food supplies, and the prevention of disease. At least 30 per cent of the calls coming to the average board of health are complaints in regard to alleged nuisances. Here the procedure is rather definitely prescribed, but limitations, too, are specific and it appears to be much easier to declare a condition a nuisance than to effect an agreement as to the manner of its abatement. Difficulties arise as well from the fact that, while the State Board of Health is invested with power to declare what diseases shall be classed as dangerous to the public health, the control of persons ill with such diseases and measures taken to prevent their spread are in the hands of the local boards, subject only to certain limitations by statute. Certain difficulties arise here for, if the board decides to quarantine a wage earner or prevent him from carrying on his usual business, he is entitled to compensation during the period of his restraint equivalent to three-fourths of his regular wages, but this compensation shall not exceed two dollars a day.

Some difference of opinion exists as to the power of the Board forcibly to remove a patient to a hospital as set forth in Sections 95 and 96, and confusion may arise out of the fact that under certain circumstances the expenses of caring for the sick are valid charges against the place of settlement, but that any expenses incurred for quarantine and keeping people out of the house where the patient is, must be made by the board of health of the place where the illness occurs. Also, the board is limited to spending money for the care and support of the patient only and cannot take care of other members of the family. Certain questions of this character as well as matters of inspection could well be combined and the work divided between certain cities and towns interested.

As the chief method of increasing its necessary powers and reducing hampering limitations Dr. Curtis advocates care in handling satisfactorily the increasing number of questions which are propounded to the board of health. If the board will try to keep in close touch with its public and teach it to appeal to the board for advice on all matters connected with health, it will keep its public, professional and lay, behind it in its work.

The Illinois State Department of Public Health has just published a new bulletin on safe milk supplies which contains, among other things, a suggested form for an effective milk ordinance suitable for cities throughout the State. There is also a list of milk pasteurization plants operating in Illinois.

Disease Transmission By Household Utensils

IN the dissemination of information regarding the bacterial origin of disease and means for the prevention of disease transmission, the fear of infection often outruns the judgment, and one often hears of patients who are afraid to go to a sanatorium, for instance, for fear of contracting further infection from others. The same attitude accounts for expensive and unwarranted efforts to isolate the sick from the well and for social ostracism in certain disorders which make a pariah of a sick man who is perfectly safe as a social contact.

Modern hospital methods have demonstrated the absolute efficacy of sterilization methods in infectious diseases and careful habit on the part of families and attendants makes it quite possible to handle contagious diseases safely in the home. Recent reports in The NATION'S HEALTH described the success of Dr. J. Allan Gray in handling scarlet fever in the home when hospital accommodation was limited, and the work of Dr. William Paul Gerhard in emphasizing the part of municipal sanitary regulation in the event of an influenza epidemic.

A recent editorial in *The World's Health* deals with the transmission of disease by household utensils. Referring to the work of Longstreet Taylor in investigating the transmission of tuberculosis by means of table utensils, it has been demonstrated that table utensils which have been used by tuberculous people do carry bacilli, and that remains of food found on their unwashed spoons and forks give tuberculosis to about 10 per cent of the guinea pigs into which they are injected. *The World's Health* goes on to say:

But it must be noted that these results are obtained before any washing has taken place. When the crockery and plate were carefully cleansed in a mechanical apparatus in which they are stirred about in boiling water and then dried with hot air, animals used for experimentation did not contract tuberculosis.

When sanatoriums are properly equipped, every guarantee against contagion and reinfection from patient to patient is provided, and the contamination of the personnel can be avoided by the use of mechanical cleansing apparatus. What is much more dangerous is the manner in which table utensils are washed in cafés and public houses. As Dr. E. E. Briau points out, hot soda water is most frequently used for the crockery, as it is the easiest way of cleaning greasy plates. It happens to be, at the same time, an excellent way of disinfecting. The problem is more complicated, however, for glasses, as hot water cracks common glasses; and in the conflict between respect for hygienic measures and the fear of breakage, he who holds the purse names the winner. In a great many establishments, the same glass may be used from 50 to 60 times in an evening and only be washed in cold water.

Dr. Briau describes the process as follows: "The dishwasher plunges the glasses and his hands into a zinc basin in which the water is renewed more or less frequently. The rim of the glass is held between the thumb and fingers of the right hand; the other hand holds the bottom of the glass and turns it two or three times in the fingers of the right hand—then all is finished, the glass is clean. At other times a bottle-brush is used, which is pushed into the glasses. This brush passes from glass to glass and between times lies in the water left in the basin. It is a repulsive object, with its slimy, worn-out bristles all glued together. Unfortunately it is very difficult to ascertain in how many cases diseases have been transmitted in this manner; nevertheless there are cases of syphilis of the mouth for which no definite cause has been found, and there are cases of gastritis, influenza, pulmonary troubles, even of diphtheria, which in all probability could be traced to the use of contaminated table utensils."

There are two methods which should be employed for the cleansing of utensils for general use and be enforced by any municipality anxious to preserve the health of the community, which are worthy of consideration: Dr. Briau advises the use of two basins of water, the first containing a strong solution of hydrochloric acid, which will destroy the organic germs without spoiling the glass. The dishwasher in this case must wear India rubber gloves. A second basin of running water will take away all trace of the acid. The use of hydrochloric acid would in the long run give rise to certain inconveniences, and it would therefore seem preferable to keep to the method employed, for example, at Leysin. There the plate and crockery are placed in metallic baskets, which are moved about rapidly in basins of boiling soapy water with soda in it. The movement backwards and forwards is obtained by means of an electric motor. The baskets are removed in succession into two or three basins, where they are successively rinsed and then dried. Glass is put by hand into hot water with about 50 per cent soap and 5 per cent soda. If this proportion of soda is strictly adhered to, every bacillus on the glass will be destroyed. The glasses are then wiped by hand. Public opinion should demand that these measures become law, as they are certainly as important as the inspection of food, which is considered quite natural in these days.

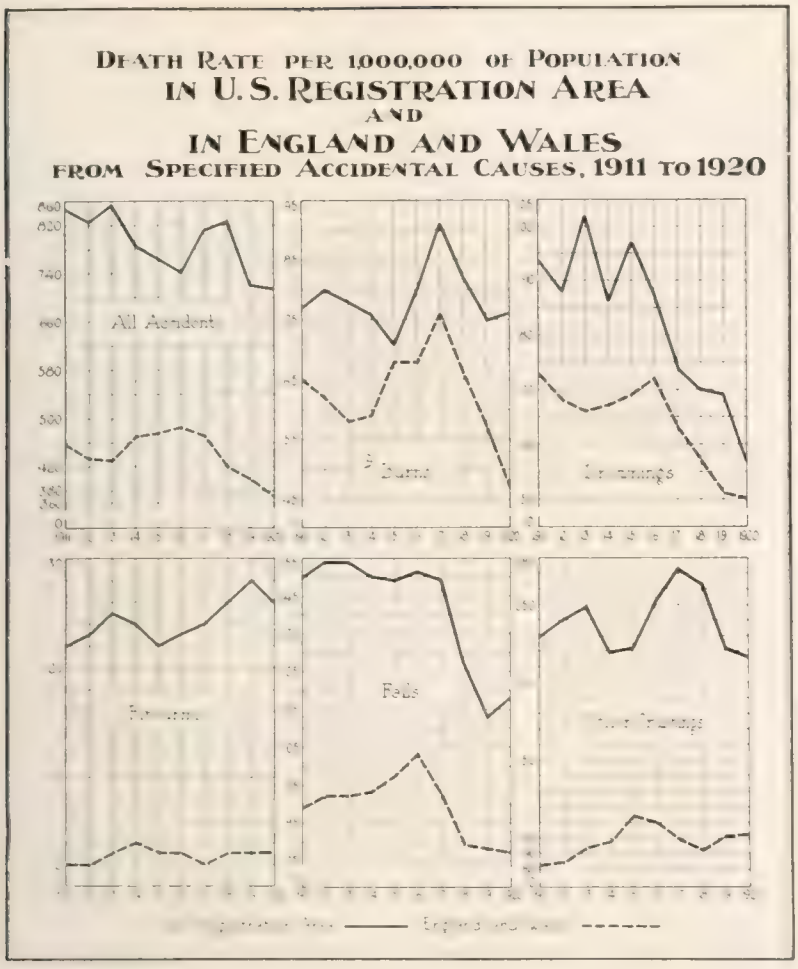
Accidents in U. S. and England

SEVENTY-SIX thousand accidental deaths is the astounding bill charged against America during 1920, according to the report of the public accident statistics committee of the National Safety Council presented at the Eleventh Annual Safety Congress which opened at Detroit, August 28.

Automobile accidents are held to be in part responsible for the unfavorable experience of 1920; in that year there were 1,200 more deaths from that cause than occurred in 1919. The chief reason for this, it is pointed out, was the large increase in the number of automobile users. The automobile fatality frequency for 1920 was 30 deaths a day, a total for the year of 11,000. The 1921 estimate of auto deaths, based on figures now available from 50 of the largest cities, indicates a considerable increase over 1920. General traffic accidents in 1921, however, will show a 5 per cent decrease over 1920, it is believed.

People died from falling accidents of all kinds at the rate of 34 a day, a higher rate than even automobiles. Burns claimed 22 lives a day, a total for the year of 8,088 and an increase of 215 over 1919. Other major causes of accidental deaths are listed in order of importance as follows: railroad accidents, 7,769; drownings, 6,066; deaths from gasing, 3,618; firearms, 2,767; mine accidents, 2,660; machinery, 2,660; street cars, 2,128; other vehicles, 2,022; conflagrations, 1,277. Other general causes of death are crushing accidents, poisonings, sharp instruments, excessive heat or cold, injuries by animals, lightning, and electricity.

The burden of accident mortality continues to fall chiefly upon children and upon the active working classes, according to the report which is the result of exhaustive research and statistical work on the part of the committee composed of Louis I. Dublin, chairman and chief statistican of the Metropolitan Life Insurance Com-



pany, Herbert P. Stellwagen, National Bureau of Casualty and Surety Underwriters, A. W. Koehler, New York Electric Railways, and E. W. Kopf.

Fatal accidents to children under five years number 9,880 or 13 per cent of the total. Young people from 15 to 24 bore 14 per cent of the burden; those from 25 to 34, 13 per cent; 35 to 44, 12 per cent, and those from 45 to 54, 10 per cent of all the accidental deaths of the year. A majority of the children came to their deaths through fatal burns, deleterious gases, and automobile accidents. One-third of all automobile deaths occur among children under 15 years of age.

Accidents in industry show a general decline of 1.3 deaths per 100,000 population for each year of the ten year period while public accidents increased 1.1 per 100,000. The 1920 report shows public accidents on a slight upward turn while industrial accidents declined, this in spite of increased manufacturing activities. This is said to be due to the aggressive spirit shown by industry as a whole in organizing for safer working conditions. Total industrial fatalities in 1920 were set at 12,500. The 1921 total, so far as can be anticipated from figures collected from insurance companies and other agencies, will probably be still lower because of the falling off in employment.

Over twice as many men died accidentally in 1920 as did women, the figures showing in round numbers 55,000 male fatalities as compared with 21,000 women. The latter, however, suffered greatly from domestic hazards, 6,000 having died from falls and 4,800 from burns; 2,756 died from injuries received in automobile accidents. Auto accidents were responsible for 8,300 deaths among men while railroad mishaps caused 6,930 fatalities.

A comprehensive means of collecting the information which will bring home to the American people the plain facts on the prevalence of certain kinds of accidents is included in the committee's report. Standard forms have been prepared for use in reporting all public accidents. These are to be distributed by the National Safety Council to every public accident official in the United States. In many cities these forms are already being used by the police and safety departments and are of great use in bringing to the attention of the public information on how accidents occur, and where and under what conditions they happen.

In commenting on the serious aspect of this continued life wastage through suppressible hazards, the report points out that had the American nation exercised the same regard for the life of the citizenry evidenced in England and Wales in 1920, there would have been 37,000 fewer lives lost in the United States. The death rate in England for 1911 to 1920 was 369 accidental fatalities for each million of population; in the United States the rate for the same period was 714, an uncontrovertible indictment in cold numbers of a national conscience which annually permits the killing and maiming of thousands through preventable accidents.

Putting North Dakota on the Public Health Map

Realizing the inadequacy of the present State health organization in North Dakota, Dr. H. E. French, Secretary of the State Board of Health, recently requested assistance of the United States Public Health Service in placing the public health work upon a more substantial basis. As a result of this request, Surgeon Robert Olesen, who has been associated with the Wisconsin State Board of Health during the past three years, has been detailed for duty in North Dakota, with headquarters in Grand Forks.

Several years ago, when Chapin of Providence rated the efficiency of the state health departments, North Dakota ranked thirty-third among the states. Approximately one-half of the points allotted to the department at that time were available because of the efficiency of the laboratory of hygiene, thus making the actual standing of the department among the lowest in the entire Nation.

In 1914 Surgeon Carrol Fox of the United States Public Health Service made a comprehensive and exhaustive report upon the health needs of the state of North Dakota. This report was published and given wide circulation. A survey was likewise made of the public health situation and certain definite conclusions reached concerning the state health needs as a basis of securing the legislation necessary to make the plans a reality.

According to Dr. Olesen's report to the Surgeon General, the annual appropriation of the North Dakota State Board of Health is $5,000, a sum barely sufficient to pay for the services of one full-time clerk, make an effort at compiling the meager vital statistics, and publish a quarterly bul-

letin. North Dakota is not in the registration area for births or deaths.

Public health work in North Dakota is, of course, not entirely lacking. In fact, some excellent efforts are being put forth by uncorrelated agencies having headquarters in different parts of the State. Unfortunately, however, these agencies are only nominally or not at all linked up with the State Board of Health. For example, the county public health nurses are supervised by the Red Cross and the majority of these workers are paid by Red Cross funds. The laboratory workers are under the supervision of the University of North Dakota. With the exception of these there is not a single full time public health worker even nominally associated with the State Board of Health.

As a result of a careful survey of the situation a plan has been devised whereby the various independent health agencies and funds may be amalgamated. In place of the present three-man State Board of Health chosen by the governor it is proposed to establish a seven-member board which shall appoint a trained, full-time state health officer. While the members of this board will be appointed by the governor, the terms of office will be for varying periods, thereby preventing to a large extent political domination. It is also proposed to make legal provision for the inclusion of at least two women on the board.

In addition to the highly important changes already outlined it is proposed to establish the simplest state health department commensurate with the needs. The plan suggested makes provision for four divisions in the department, each with a trained, full-time head. These divisions are: (1), Vital statistics; (2), preventable diseases; (3), child hygiene and public health nursing; and (4), sanitary engineering.

Through the expenditure of approximately eleven thousand dollars more than is now being appropriated to uncorrelated agencies, it will be possible to create an efficient department with seven full time supervisors and at least five full time clerks. In this estimate ample provision has been made for printing, traveling, and other incidental expenses. The total sum involved, $43,500 is slightly over 1 per cent of the total funds appropriated by the state for all purposes and represents a *per capita* expenditure of $0.067. In this connection it will be recalled that an expenditure of 2 per cent of the total funds is ordinarily considered reasonable for public health purposes.

With a tangible plan available it now becomes necessary to arouse the people of the state to the desirability of acquiring a health organization which will actually prevent unnecessary sickness and premature death. To achieve this result the use of broad publicity among all classes will be required. Plans are being shaped to this end. There is ample reason to believe that as soon as the people of North Dakota adequately realize the necessity for competent health supervision they will demand an organization worthy of the state's fair name.

States Pass New Laws Regarding Nurses

Nursing legislation has been enacted or considered in several of the states the past year. In New York, the law relating to registration of nurses was amended by extending until January 1, 1923, the period under which nurses could apply for license to practice as registered nurses under waiver, and also extending until September 1, 1922 the date of waiver for attendants. This was done in order to accommodate many nurses who had not already taken advantage of the law, and who could only do so under an extension of it. Maryland passed laws requiring the registration of practical nurses and giving credit to nurses for training received in schools of public health. Massachusetts has passed an amendment to the school medical inspection law, by which suspicious cases among school children are referred to the school nurse or physician. A bill to increase compensation of the chairman of the Board of Registration in this state was defeated. In Virginia, a law adding a clinic of doctors and nurses to the Bureau of Tuberculosis Education of the State Board of Health was passed. A bill authorizing the State Department of Health to employ tuberculosis nurses was introduced in New Jersey, but not passed. There were no changes in nurse registration laws in Kentucky, Mississippi, or South Carolina.

Vitamins in Canned Foods

CANNED foods supply vitamins as abundantly as the same foods cooked in the ordinary way is the fact disclosed by research carried on by Dr. E. F. Kohman of the Research Laboratory of the National Canners Association, Washington, D. C. The vitamin content is the greatest when foods are at the proper stage of maturity for consumption and decreases when the foods are held for a period of time. The fact that canned foods are prepared in their prime and must be in this condition for canning is in favor of the canned product.

Canned tomatoes are said to be among the richest sources of all vitamins in any product. On the strength of their content of the antiscorbutic vitamin, canned tomatoes have been recommended by physicians to supplement pasteurized milk in infant feeding. Special use was also made of canned tomatoes in army rations because of the vitamins in them. Canned tomatoes have been stored for three years and still found to be apparently as rich as ever in vitamins. This is longer than the antiscorbutic vitamin, which is the least stable of them all, can be kept by any other known method.

Canned foods are processed in vacuum while foods cooked on the stove are exposed to the air, which is the cause of a considerable loss of vitamin C. From the experimental evidences now available, canned foods are found to be practically as rich in vitamin A and B as the corresponding fresh raw products. In acid products, such as tomatoes and fruits, there is only a negligible destruction of vitamin C by ordinary cooking or in the canning process.

"No one should infer that raw fresh foods should be dispensed with in the normal human dietary," says Dr. Kohman. "This would be contrary to the universal belief among physiologists and students of nutrition. Those foods which can be eaten raw should always be so eaten as far as possible, when they can be obtained in the fresh state, at reasonable cost. When they are out of season, inconvenient, or uneconomical, their place can well be taken by canned products, as evidence shows that canned foods are as nutritious as ordinary cooked foods.

"A consideration of all the recent experimental evidence convinces one that it is possible to select a diet, entirely of canned foods, which is complete and adequate for long continued nutrition and which contains all the known vitamins."

Digest of Sanitary and Hygienic Advance

ORGANIC disease of the heart occupies first place among the causes of death in the general population in the registration area of the United States: From 10 per cent to 15 per cent of all life insurance claims are for deaths from this cause, from 2 per cent to 3 per cent of all persons who apply for life insurance are rejected on account of cardiac abnormalities; during the world war 2½ per cent of the draftees were rejected on account of heart disease. Is it not about time for the sanitarians of the country to make a more direct and continuous attack upon the heart disease problem?

London Medical Officers Study Cardiac Child

The cardiac child occupied the attention of the meeting which was held by the Medical Officers of Schools at London on June 26 last and Langmead (*The Lancet*, cciii, p. 18, July 1-22) stated that in schools the amount of recognizable cardiac disease was greater than the amount of tuberculosis therein. Placing the proportion at 3 per cent, it would mean that in England alone there are 183,000 cardiac children among the school population. One-third of the children attending schools for the physically defective are cardiac cases. Rheumatic fever is considered to be the overwhelming method of production of this condition, and the greater portal of entry of the infection is in all probability the upper air passages, particularly the tonsils and the nasopharynx. The eradication of adenoids and infected tonsils seems, therefore, to be at once the most available and logical method of attack. The careful, periodical physical examination of school children will do much to discover those who are in the early stages of cardiac disease and the conditions which predispose to it. This makes it possible to apply prophylactic measures, particularly those of naso-pharyngeal hygiene. It permits the regulation of the child's life in such a manner as to favor cure or compensation of his heart condition. To be sure, the cardiac child, if crippled at all, is crippled permanently and the question therefore resolves itself in such cases into the education of the child so that he may pursue a useful life in spite of his handicap. It is better, though, that the creation of cardiac children be prevented altogether rather than that they shall be salvaged.

Anti-diphtheritic Vaccination

Renault and Lexy (*J. Prev. Med.*, p. 238, May 20-22) report a method of anti-diphtheritic vaccination which they have employed for more than a year. In searching for a more simple method than that of Park and Zinsser, they employed a mixture consisting of 50 toxic and 50 antitoxic units (i. e., capable of neutralizing 5,000 toxic units). They make three subcutaneous injections of 1.5 c.c. of this mixture at weekly intervals. The authors hope to be able to reduce the number of injections to two or even one. The reactions are feeble. The results were controlled by the Schick reaction and an active immunity was found to be slowly produced.

Open Air Schools for the Tropics

The essential feature of comfort in the tropics is air movement. Protection from light and weather are secondary to this, because if there is a free circulation of air, one may work and live in relative bodily comfort. This is particularly true of school houses in which turbulent young minds are cooped very much against their wills and in which productive study cannot be achieved in the presence of physical discomfort. Yet the great majority of schools in the tropics are badly ventilated and badly over-lighted for the reason that they are laid out on plans which with the addition of a heating plant might serve for Iceland itself. Some schools are not only uncomfortable and unhygienic, since they are merely reservoirs of dead, humid air which exercises a very deleterious effect upon the health and morale of the pupils but also they are extravagantly expensive. Too frequently the architects of the temperate zone relegate to themselves a superiority which is not existent and refuse to adopt designs which long generations of tropical dwellers have evolved out of their experience, or they modify tropical designs without intelligence and produce such effects as the bastard-Spanish or so-called "mission style." A simple shed having a double roof with a central cowl, a crowned concrete floor, one solid wall which the pupils face and screen walls with a two-foot clearance above and below, is comfortable and hygienic. It is easily cleaned with a hose and is very cheap to construct. The material of choice for the walls is concrete, since it is fungus and antiseptent, and the roof may be tile or composition. A thatch roof is cool but not durable and will harbor rodents. The outside roof should extend far enough to intercept the average rain from passing over the top of the screen wall.

Tetra-chlorid in Hookworm Treatment

The value in the treatment of hookworms and ascarids is set forth by Leach (*J. A. M. A.*, Vol. 78, 23, p. 1789) who states that chemically pure carbon tetra-chlorid administered to man in 10 c.c. doses produces no ill effects and that 12 c.c. removes all hookworms and ascarids, although having little effect on trichurids and oxyurids. Further work on the part of this investigator will be directed toward the determination of the optimal dose. In the fourteen cases reported all become negative for hookworms. The maximal dose given was 1 c.c. per 5.5 kg., and the minimal 1 c.c. per 19.6 kg. Nichols and Hampton (*B. M. J.* 3209, p. 8, July 1-22) after treating a very considerable number of persons with carbon tetrachlorid, conclude that it is an efficient anthelmintic remedy for hookworms which may be administered safely in doses of 10 to 20 minims to children of 3 or 4 years of age, even when they are seriously ill from various causes. "It aids the expulsion of *Ascaris lumbricoides*, if it is followed by a purgative, but it is not as effective as chenopodium in killing this worm. The drug does not seriously deteriorate on keeping. It is more valuable for campaigns against hookworm disease because patients do not object to its taste; it is not necessary to prescribe or follow the administration of it by a purge; it is much cheaper than any other drug that has been used; it can be prepared in a high degree of purity and a chemically pure preparation should always be used; the person who is being treated can do his usual days work." The authors suggest that since chenopodium is soluble in carbon tetrachlorid that a mixture of the former with the latter, in the proportion of one to four, should be useful in the treatment of *Ascaris lumbricoides*.

Statistics of Cancer in the Aged

Roussy and Laroux (*Bul. de l'Assoc. Fran. pour l'etude du Cancer*, xi, 2, Feb. 22) state that out of 400 necropsies in persons over 60 years of age, 34 or 8½ per cent had cancer, 33 epithelioma and one sarcoma of the lung. It occurred more frequently in men than in women, 22 to 12 or 64 per cent as against 36 per cent. Death in the bulk of cases was due to an intercurrent infection.

Herpes Zoster and Varicella

The discussion of the identity of these two diseases still continues, and while the clinical evidence is exceedingly interesting and highly suggestive, the prudent scientist will do well to withhold final acceptance of the theory until the virus of varicella has been isolated. According to Hallez (*Gaz. dos Hôp.* 95, 44, p. 713, June 6-22), Landouzy, in 1883, stated that the symptomatic zonas or "bosteriform eruptions" occurring in the course of tuberculosis, general paralysis, tabes, diabetes, myelitis, and peripheral neuritis should not be confused with true herpes zoster, an acute, febrile, almost cyclical, *possibly contagious disease possibly conferring immunity*. According to Landouzy, herpes zoster is a general disease having a tendency to circumscribe itself upon the nervous system and to produce secondary cutaneous expressions. He added: "There is between zoster and the zosteriform eruptions all the distance which separates and all the difference which distinguishes a disease from a symptom. Von Bokay of Budapest (*Jahrb. f. Kinderheilk*, 1919) in 1892 reported five cases which he had observed and which seemed to substantiate in a measure this conception and he asked if the unknown causal agent of varicella might not under certain conditions manifest itself in the form of herpes zoster. In 1909 and 1919, he reviewed the subject, publishing additional cases, twelve in all, of observations of zonas followed by varicella after an interval of several days in other patients. Tremoulieres (*Toulouse Med.* 1909) and Le Feuvre (*B. M. J.* 1913) published additional cases. A. Netter, who in 1920 reported cases which he thought tended to support von Bokay's observations, stated before the Paris Academy of Medicine at its meeting of May 16, 1922 that he had studied eleven new cases which apparently offered additional support to the hypothesis of the identity of the two diseases. He expressed the opinion that in cases of zoster the virus of varicella is probably localized in a small number of the spinal ganglia or in a limited area of the spinal cord, and it is this localization which causes the difference between the eruptions of zoster and chickenpox. The literature of the subject which is quite extensive is well summarized by Kraus (*N. Y. Med. Jour.* Aug. 3-21) who concludes that "at the present time enough instances of the coincidence of these diseases have occurred to make it more than likely that they have a common cause, at least when they appear within twenty-one days of each other." The entire question is of considerable importance to epidemiologists and sanitarians, since it involves a possible explanation of the way in which chicken-pox may be perpetuated and transmitted.

Epidemic Encephalitis

Price (*Am. Jour. Med. Sc.*, clxiii, 6, p. 871) reports his clinical observations in seventy-eight cases of epidemic encephalitis with special reference to end results. Approximately three-fourths of the cases terminated fatally; 61 per cent of the remainder were left with persistent or permanent sequelae. Relapses were frequent even several months after apparent recovery. The character and intensity of the initial symptoms bore no relation to the prognosis. While the disease at the onset is frequently associated with naso-pharyngeal infection, the disease bears no direct relation to true influenza. Children and young adults withstand the infection better than those of middle or old age. Change in the abdominal reflexes is an important and frequent symptom. Epileptiform attacks may be the sole manifestation of the infection. The curve of seasonal incidence in this group of cases rose in the late autumn, reached its maximum in midwinter, and declined in the spring.

Seriousness of Gonorrhoea in Women

This is well illustrated by Langstroth's conclusions (*N. Y. Med. J.* cxvi, p. 26 et seq. July 5-22. "Gonorrhoea in women is not confined to any one stratum of society and is increasing in frequency. The gravity of this disease is not appreciated as fully as it should be. The diagnosis is often difficult and is frequently confused with chronic non-specific infections of the cervical mucosa. Gonorrhoeal infection of the cervix is always followed by secondary infections which are often the cause of severe systemic and mental disturbances. Surgical removal of Skene's glands and Bartholin's glands and the cervical endometrium is the only way in which the disease can be eradicated in the majority of cases."

"Dans les Épidemies, bénignes ou dangereuses, il ne s'agit pas d'un homme, mais de la cité, et meme de tout un pays."

The Serum Treatment of Anthrax Septicemia

Symmers (*Annal. Surg.* lxxv, 6, p. 663 et seq. June-22) believes that it is time to revise our conceptions regarding the treatment of human anthrax. He is of the opinion that every anthrax lesion should be regarded as attended by general infection until proven to the contrary. Tampering with the pustule is unjustifiable. The only permissible form of local treatment is the isolation of the pustule within a barrier of anti-anthrax serum subcutaneously injected every four hours. A sterilizing dose of 150 to 200 c.c. of serum should be injected intravenously at once and supplemented by subsequent intravenous injections of 40 c.c. every four to eight hours. If the blood culture is negative at the end of twenty-four hours, the intravenous use of serum may be discontinued, the local injections being continued until the pus is free from anthrax bacilli, or at least until involution forms occur in the stained films. The liberal use of anti-anthrax serum if begun in time in anthrax septicemia is capable of sterilizing the blood rapidly.

Indications for Quinin Intravenously

It should not be forgotten that the intravenous injection of the salts of quinin is not wholly without danger. Circulatory depression and certain nervous phenomena are frequently observed and local necrosis and sloughing occur once in a while. The dangers are, to a certain extent, offset by the rapidity and certainty with which the drug administered in this way establishes contact with the parasites of malaria. In cases in which on account of gastro-intestinal disturbance, there is a likelihood of non-absorption, or in which there is a grave condition such as delirium or coma, the intravenous route should be used, but it never should be a routine method of giving quinin and it is seldom indicated in the simple or chronic infections. When the intravenous

method is employed, all the precautions which surround the administration of salvarsan should be observed.

The Treatment of Pediculosis by Pyrethrum Soap

Juilet, Galavielle and Margaret reported to the Society of Medical and Biological Sciences of Montpellier and the Mediterranean Languedoc (*Gaz. des Hop.* 95, 41, May 27-22) on the results obtained by them in the treatment of pediculosis with a soap prepared from the active oleo-resin of pyrethrum flowers, *Pyrethrum cinerariefolium*. After a single application the lice were killed immediately and the nits became dull and opaque and did not subsequently develop.

Fetal Malformations and Syphilis

Henrotay (*Gynec. et Obst.* 1922, Vol. 4) reports the case of two sisters-in-law. One was delivered successfully of macerati feti and stillborn children, two living children, and a child suffering with pemphigus and latter developing congenital syphilis. The other sister was delivered of an anecephalic monster. The two husbands (who were brothers) and their brother were all found to have hereditary syphilis. The author quotes also cases of a visceral ectopia with double talipes and spinabifida, a cephalocele with meningocele, a hydatiform mole, a hare-lip and cleft palate, all from mothers giving the serological reactions of syphilis. He is of the opinion that syphilis is a common cause of fetal malformations.

Industrial Dermatoses

The frequency of dermatitis of the hands and forearms in workers in cutting oils and greases is emphasized by McLachlan (Glasgow *Med. Jour.*, Apr.-22). Carefully sulphonated compounds or those made of good potash or soda soaps or of petroleum seem free of danger. These oily mixtures and pastes are used in mixtures with water for cooling, lubricating, producing smooth finishes and also for protecting metals against oxidation or corrosion. The dermatitis, which occurs in three types, seems to depend upon the frequent wetting of the skin with the watery fluid which is irritant by reason of containing free alkalies, fatty acids, metallic chips, particularly those of copper, or impure anthracine oil. Prophylaxis is best accomplished by the use of pure high-grade cutting oils and by careful personal cleanliness.

Preventive Obstetrics Assuming Greater Importance

Preventive obstetrics is a phase of sanitary medicine which is gradually assuming greater importance, although in America it has not yet received the widespread attention which it deserves. The British Ministry of Health has long realized the vital necessity of study of the subject and has issued a report (*Min. Of. Health Rpts.*, 7, 'On the Causation of Fetal Death, Eardley, Holland) which is commended to those interested in the subject and to those health workers who care to consider public medicine in its broadest phases. Out of 300 fetuses from mixed districts studied by him, Mr. Holland found that 51 per cent of the deaths were due to complications of labor, 16 per cent to syphilis, 10 per cent to the toxemias of pregnancy, 2 per cent to chronic renal and other maternal diseases, 6 per cent to relative placental insufficiency, 5 per cent to fetal deformity and that in the remainder, (10 per cent) the cause of death was undetermined. He expresses the opinion that more fetuses were killed by the complications of labor than died during pregnancy from maternal or placental disease and estimates that half of these children might have been saved, 20 per cent by adequate antenatal care, an equal proportion by improved obstetrical technic, and the remainder by a combination of both methods.

Mode of Infection and Prophylaxis of Leprosy

Sir Leonard Rogers, (*B. M. J.*, 3208, June 24, 1922, p. 987 et seq.) analyses the probable source of the infection in 700 recorded cases of leprosy as follows:

Mode of Infection	Number	Percentage	
Conjugal	85	12.14	18.28
Cohabiting	43	6.13	
House	180	25.7	39.84
Room	35	5.0	
Bed	64	9.14	
Attending on lepers	139	19.87	19.87
Leper playmate	23	3.28	19.42
Close association with leper	113	16.14	
Wet nurse	8	1.14	2.59
Wearing leper's clothes	3	0.43	
Vaccination	4	0.59	
Inoculation from leper	3	0.43	

Relation of Food to Alimentary Toxemia

Intestinal toxemia, whether from intestinal stasis, food fermentation, or poisonous derivatives from toxic microbes has a most important bearing upon nervous exhaustion. The whole subject is discussed by Theodore Thompson, M. D., in a recent issue of The *Lancet*. The possibility that the alimentary tract is the site of infection in certain of the acute disease of the brain has received striking confirmation in recent work upon cerebrospinal fever, and some of the most hopeful results have been obtained in acute mental conditions by clearing up all possible foci of infection.

Likewise in cases of nervous exhaustion the existence of bodily poisons needs always to be excluded. To prevent the nervous complications of intestinal stasis it is most important of all to attend to the hygiene of the mouth and associated cavities. Regular daily evacuation of the bowels is essential. The relation of food to alimentary toxemia is very important. Dr. Thompson quotes the work of Coombes and others as having shown that the ingestion of large quantities of meat tends to produce excessive fermentation in the intestine. The observers advise in such cases a period of rest from meat foods for some weeks and the giving of farinaceous foods during this period. On the other hand, many observers have shown that the ingestion of carbohydrates, especially sugar, favors certain forms of intestinal putrefaction. The excessive use of sugar in the coffee materially delays the emptying of the stomach. It is probable that diminution in the total amount of food is of the most value in reducing alimentary toxemia. Most people eat far too much and might with advantage make a very considerable diminution in the total amount of food eaten. The preparation of foods is also most important; all salads and uncooked vegetables should be carefully prepared before being eaten. Especially should the utmost endeavors be made to protect the source of the milk supply.

The New York Reconstruction Hospital now has a night clinic for the treatment of workers who still require after-care to remove remnants of disability. This allows the man to work during the day. The clinic is open three nights a week from 7 to 9 o'clock.

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Civil Servant or Parasite

IT is the fashion in certain political circles in these days of excessive taxation to assume that the employees of the government constitute a largely useless burden upon the resources of the community. In a sense this is perhaps an enlightening revelation of the politician's attitude toward the "jobs" which he often has assumed the right to dispense. To the faithful civil servant who has been inclined to believe that he was earning his salt and sometimes a good bit more, the following editorial from the New York *Times* of August 6 will come as a gratifying recognition of the real state of the case:

Senator Stanley pictures a "tax-eater" on the back of every two "tax-producers." He is not very sure about his statistics. He states merely that "It has been said" that there are fifteen millions of them. The implication is that they do nothing but devour as parasites what the others produce. While this may be true of some public officials, it is a too hasty generalization. An officeholder may be one of the most productive of all men. Many of even the "unknown experts" are doing a part of the tax-producers' work, and so lightening his burden.

They may be thought of as fighters: men fighting fires in the forests and tenements; men and women fighting-pathogenic bacteria in the air, earth, and water; fighting flood, and drought, heat, and cold; fighting ignorance and sloth and passion in thousands of schools; fighting uncleanness, disease, and waste with broom and lens and test-tube and scalpel and honest and expert eyes and skillful hands.

"The Third Man" is the sweeper of city streets and the "pathmaster" of the country roads. He gathers our letters of affection and business and distributes them even in the remotest cabins on the mountains and plains. He weighs the winds, reads the portents of the clouds, makes predictions of fair and foul weather. He pasteurizes the milk, tests and labels foods and drugs, corrects false balances and short measure, keeps watch over forest and stream, and gives warning of rocks and shoals to men at sea and of plague and poison to those on land. He is warden of fish, bird and wild beast, host to the homeless, guardian to the child who comes friendless into this world and chaplain to the man who goes friendless out of it. He is assessor and collector, treasurer and controller, teacher of twenty millions of children, youth, men and women, public librarian, superintendent, doctor, nurse and guard in public hospital, prison, almshouse, coroner and keeper of the potter's field, Governor, Mayor, Judge, prosecuting attorney, sheriff, soldier, sailor, General, Admiral, legislator, Chief Justice, member of the Cabinet, President.

Pyrotechnics and Performance

WHAT'S the matter?, said the Old Doctor to the Health Officer.

"I'm feeling rather low in my alleged mind," said the Health Officer.

"*Et pourquoi?*" said the O.D., who had served in France and loved to pose as bi-lingual.

"The County Supervisors turned me down. I asked for a thousand dollars to drain that swamp west of town, the worst Anopheles breeder in the county. Said they couldn't afford it because they had to put up fifteen hundred for Fourth of July fireworks. Great Scott!! Fifteen hundred dollars to burn up in an hour and all I wanted was a thousand for sub-soil drainage which would have been protecting this town for the next century. I'm about ready to quit and transfer my laudable activities to some less benighted community."

"Well, I wouldn't take it so hard, if I were you," replied the O.D. "You've badgered 'em into a new filtration plant. You've got in a sewer system for most all the town, and your privy ordinance covers the rest. You've started the medical inspection of schools and you have a visiting nurse. You've reduced the death rate slightly—or at least you think you have—and your ante-natal work is getting started splendidly—"

"Yes, I know, but if I could do this piece of drainage, I could reduce malaria in this town 30 per cent!"

"Sure, you could, and you'll get that work done yet. You're a persistent young man, all right. But what you've got to remember is that the dear old public which is paying the bills likes something shown for its money. Didn't it contribute freely to erect a tablet to old Hi Transom who was the first settler of this town, a no-account ruffian with the disposition of a barbed wire fence crossed in love? Sure they did. Why? It made a show. That's why you got your money for the Swat-The-Fly campaign which you know was all foolishness when every stable in this town was breeding flies faster than all the swatters could swat 'em. That's how you got away with your Better-Baby-Week which worried a lot of healthy babies so that we O.D.'s had our hands full for a month afterwards. The public wants a brass band, a silver tongued

orator, silk badges and a brand new sensation every time it parts with a nickel."

"But it'll reduce the mosquitoes if I get that subsoil drainage. The young fellows can sit with the girls behind the honey suckles on the front porch on summer evenings and put in their time to better advantage than in slapping blood thirsty Taoniorynchi and Anophelinae."

"Sure they can. Why don't you get up an Anti-Anopheles-Week? Get the Rotary Club to dig the first ditch and put in the first tile. Have a race between our two Boy Scout Patrols as to which can dig the most ditch in an hour. Have the Women's Clubs serve coffee to the workers, while the Silver Cornet Band furnishes the music, and our own corn-fed congressman supplies the words. Give the people a grand old Roman holiday and after they've messed around in the swamp for a while go back after the Supervisors. They'll have to come through because you'll have public opinion behind you."

"Well that looks pretty good to me."

"Sure it does! If you'd been curing afterpains with a beautiful red mixture of syrupus rubi and dilute hydrochloric acid as long as I have you'd know more about the general public."

Accident Prevention as a Municipal Health Problem

ATTENTION has been called in previous issues of THE NATION'S HEALTH to the importance of accidents as a factor in the preventable death rate. There is no group of causes of death so readily amenable to control and yet health officials at least have almost wholly ignored this problem in favor of far less promising although more traditional lines of endeavor. Dr. L. I. Dublin estimates that in 1920 over 75,000 lives were lost as a result of so-called "accidents" in the United States, the rate per 100,000 population (71.4) being generally comparable with the death rates from such causes as congenital debility, nephritis and Bright's disease, cerebral hemorrhage and softening of the brain, and cancer and other malignant tumors, and in marked excess of the rate for diarrhea of infants under two years of age. This accident rate for the United States is nearly double that reported for England.

During the last few years it seems that the public is at last being awakened to the importance of controlling the accident hazard. An attack on this problem on a broad municipal scale was first made in St. Louis in 1918 under the leadership of Mr. C. W. Price of the National Safety Council. A municipal safety week was organized in spectacular fashion with the result that but one fatal accident occurred during the week as compared with a normal of 24 of such deaths for a corresponding seven day period. Nor was the effect a purely transient one. The annual total of accidental deaths for St. Louis fell steadily from 510 in 1917 to 330 in 1921, the rate for deaths due to motor vehicles fell from 3.7 per 1,000 cars in 1919 to 1.4 in 1921, and the number of deaths of school children fell from 49 in 1919 to 18 in 1921. Similar results were obtained in Milwaukee, Detroit, and other cities. In Detroit, for example, the deaths of children of school age due to accidents fell from 96 in 1919 to 30 in 1921. These accidental deaths of children carry such a peculiar appeal that in Baltimore last June the most dramatic feature of Safety Week was the formal dedication by the Mayor of a monument "in memory of the 130 children whose lives were sacrificed by accident during the year 1921." During this Safety Week in Baltimore there were but two accidental deaths as compared with a normal of nine.

The most ambitious municipal Safety campaign yet conceived is to be initiated by a Safety Week beginning October 8 to be held in New York City under the primary auspices of the Safety Institute of America and under the active direction of Mr. C. W. Price, who organized the movement in the cities mentioned above. The week will be only the beginning of a program for cultivating safety habits throughout the year in which the public schools will play a central part. Judge Elbert H. Gary whose contributions to the cause of industrial safety have been so notable in the past has accepted the chairmanship of the General Committee which will be in charge of the campaign.

Mr. L. V. Coleman, director of the Safety Institute, in commenting on the organization of this committee, points out that while industrial accidents have decreased 20 per cent in New York City in the past three years, accidents to children have increased 22 per cent. He continues:

> The Police Commissioner predicts that 550 children of 13 years or under will be killed in highway accidents in New York City during the current year, and the Safety Institute's survey during June disclosed the fact that 113 children were killed in that one month.
>
> Judge Gary's decision to accept the leadership of the New York Public Safety Campaign came as the result of a personal study of the accident situation in New York City and of what had been accomplished in other cities through our fully organized, permanent safety campaigns. His decision was largely influenced by the consideration that this movement, now [illegible] in New York, may offer him the opportunity to render a greater service to humanity than he rendered by his pioneer efforts in industrial safety.
>
> Judge Gary's acceptance of the leadership of this enterprise marks more than the beginning of a public safety week campaign. It signals even more than the launching of a permanent program to reduce the [illegible]

dent toll in New York City. The real significance of the acceptance is national for it marks the crystallization of a movement which has been in solution, so to speak, for the ten years since its inception.

Recognition of the public safety movement by Judge Gary through his assumption of formal and active leadership raises the movement to first rank and assures it a place in the country's history. It places public safety on a firm foundation besides the achievement of industry in the prevention of industrial accidents.

New York's Safety Campaign will indeed be watched with eager interest and cannot fail to exercise a power influence upon the spread of this movement. It deserves the earnest support of all public health workers. Our aim is to prevent preventable disability and death; and the control of the accident hazard is one of the most effective ways of accomplishing this end.

Death of Robert Bruce Low

AMERICAN sanitarians who had had the privilege of knowing the kindly author of "The Progress and Diffusion of Plague, Cholera and Yellow Fever Throughout the World" learned with regret of the death of Dr. Robert Bruce Low recently in the seventy-seventh year of his life. Many who were in London during the World War will remember the gentle doctor at the Local Government Board office who was never too busy to lead his American visitors through the mazes of the health system of the United Kingdom, to discuss with the greatest erudition the most recent advances in epidemiology, yet who always modestly referred to himself as "an old comb-out." Never hurried yet always busy, always looking as though he had just stepped from a bandbox, always charming, kindly, and gentle, and always giving from his vast store of experience, a man greatly to be envied in his quiet poise, his unassuming dignity, a perfect example of how best to grow old. In his passing, sanitary science has lost an historical figure and a tireless worker, and a host of health officers all over the world have lost a valued friend.

Born in Edinburgh in 1846, graduated in medicine in 1867, a rural practitioner for the succeeding nineteen years, he became a Medical Inspector of the Local Government Board in 1887. He arrived at his new post with a wide field experience growing out of his work as a rural medical officer of health, a district medical officer, a public vaccinator, a work-house medical officer, the Surgeon-Major of the Second Volunteer Battalion, Yorkshire Regiment, and with the D.P.H. degree conferred by Cambridge in 1879. In 1886 he published an article on the tenure of office and the method of appointment of Medical Officers of Health which played a great part in securing for these officers better terms of appointment.

In his labors with the Local Government Board he played an integral part in the upbuilding of the United Kingdom and his published reports, many of which were almost epoch making, cover a wide range of epidemiological subjects. His work as examiner in sanitary science, state medicine, and public health at the Universities of Edinburgh, Glasgow, Leeds, and Cambridge gave him a wonderful opportunity to insist on proper qualifications for those intending to enter into public health work. In 1919 he was appointed by the General Medical Council, Inspector of Examinations of the twenty-two examining bodies that grant degrees and diplomas in public health and sanitary science in the United Kingdom and Ireland, thus giving him an added opportunity to further standardize the profession of sanitary medicine, and it was in this office that his useful, praiseworthy life closed.

Personnel in Preventive Medicine

THE field of public health work engages the full time of something like ten thousand trained workers, and numbers in its personnel such specialized functionaries as sanitary engineers, laboratory directors, specialists in statistics, epidemiologists, administrators of clinics, mental hygienists and psychologists, nutritional experts, and highly scientific hygienists, but is not as yet, according to Dr. George E. Vincent, president of the Rockefeller Foundation, so organized in its standards or objectives as to attract widely the class of workers the service demands. Curative rather than preventive medicine, has commanded the pick of men in training. This is not justified by the opportunities open in the public health field, and 20,000 persons must be recruited to the public health field in the next ten years to take care of the increasing demands of preventive medicine. In the annual report of the Rockefeller Foundation, summing up the results of a survey made of students now enrolled in leading American medical schools with respect to their evaluation of a career in public health work as compared to the practice of curative medicine, Dr. Vincent says:

The reasons given by these young men for deciding against preventive medicine in preference to private practice are:

"It is not a socially recognized, clearly professionalized calling; there are no special schools for adequate training; tenure and promotion depend not on merit but political 'pull'; salaries are meager; the private practice of curative medicine is more reputable, independent, profitable and satisfying."

These young men are in many respects uninformed and misinformed. Preventive medicine has already gained the status of a profession and is making rapid progress in public favor. At least two special schools of high rank are offering a thorough and appropriate training. An increasing number of important posts are freeing them-

selves from the trammels of "spoils politics." The salary received by a health officer of full rank probably exceeds the income of the average private practitioner. Private practice has many disadvantages; excessive overtime and night work, poor collections, the necessity of dunning patients, little chance to study, constant economic pressure, a heavy burden of unpaid service, competition with quacks and charlatans, temptation to surrender scientific ideals. Public health service, on the other hand, is making a strong appeal to men and women of imagination, courage and social spirit just because it does not involve most of these things and offers many positive attractions.

Yet it must be admitted that the skeptical undergraduates are not wholly wrong. Public ignorance and indifference, invidious comparisons, lack of sound training in many officials, prejudice against law enforcement, delay the full appreciation of what preventive medicine means to society. The establishment of adequate schools has been a recent event. A few disheartening instances of political tampering with health departments have occurred of late. It is also true that the level of pay is far too low. Even the few highest salaries suffer painfully in comparison with the annual income of leading private consultants and surgeons. A greater share of popular admiration, larger freedom from control, close personal relations with appreciative individuals, a deeper sense of professional pride probably are still the portion of the practitioner of curative medicine. Persistent efforts then will be needed to make public health careers more attractive to the persons best fitted for successful work. Much can be done to enlighten and challenge medical students and young graduate doctors, but the problem calls for something far more fundamental than that. Only when people understand the purpose and methods of public health measures can they be counted upon to cooperate willingly and efficiently.

Many of the tenable objections to public health work as a professional career will give way before the wider program and increased opportunity for thorough education in this field. Several first rate schools are now preparing a body of health workers who will set new standards of service and make invalid the invidious comparisons which have sometimes been made in the past with some justice. Meanwhile, a new value of the service is seen as the demand for such workers increases.

Seekers, Doers, Vulgarizers—The Triad in Public Health Work

THERE are three distinct types of men in the profession of sanitary medicine—the research worker, the practical sanitarian who applies the knowledge which the research worker has laboriously gained, and the vulgarizer* who talks about the work of the other two. A combination of the latter two types is not uncommon, a union of the first two is seldom seen, of the first and last almost never and then looked upon with suspicion by a profession which at best is apt to be extremely critical of any departure from its accepted standards. Once in a long time an individual combines the traits of all three. Such an one is an intellectual giant, a tremendous force for good. All three types are necessary to the advancement of hygiene as a means of community salvation.

The research worker attacks a given problem and solves it in all its minutiae. It may be a piece of pure science without any apparent application in a practical way and it may lie unused for years in the lumber-room of knowledge, until the discovery of some co-related fact renders it practical of application. Therefore, while the garnering of facts of no immediate value may at first glance appear wasteful, this is not the case, since no addition to the sum of human knowledge is useless. Also, the performance of research which apparently does not prove anything, is of value since negative findings assist the advancement of knowledge by a process of elimination and thus conserve the time and resources of other workers.

The seeker is essentially a man of detail and sometimes the very nature of his work narrows, rather than broadens, his mind. He is the personification of skepticism and he believes nothing which is not proved by the standards of cold reason. Strangely enough, his is a fertile imagination, perfectly controlled by a nature whose motive power is an insatiable scientific curiosity. He loves facts for themselves and the priority of finding them.

The doer is a rougher type, in a way more ruthless and possessed of a less creative imagination, yet at the same time his is a warmer and more sanguine nature than is that of the seeker. He cares for nothing which he cannot put to work but he is an optimist, willing to try any sort of measure which holds out the reasonable promise of success. He measures facts by what they will do and by what they will cost in doing. Facts are to him tools which may be put into the hands of an organized force for the protection of society. He cares not for details. His interest lies in results not in processes. He looks at his profession through broad-angle lenses rather than with a close-up, sharp focus. His energy devotes itself to making facts work for him rather in discovering them. The doer loves facts for what they will do.

The vulgarizer to a certain extent is a smatterer. His ability lies in an impressive exterior, a convincing manner, and an ability to divest a subject of all extraneous matter and to reduce it to the least common denominator of the vernacular. There is something of the histrionic in his make-up. He is, so to speak, the bard of sanitation. Absolute accuracy he does not demand; the pros and cons of a half-proved discovery do not interest him. He looks for the high lights, not the chiaroscuro. He has the quality of interesting people, of attracting their minds to the consideration of health. He is a popular educator, speaking the language of the layman to translate to him

*"Vulgarize: To diffuse among the common people." Standard Dictionary.

the facts of science, an evangelical sanitarian running ahead to preach the gospel of health and urging his hearers by word, by speech, by illustrations, to turn from a sinning against Hygeia and to seek the paths of sanitary living. He popularizes the work of the other two. He is the messenger of him who seeks and finds and of him who applies sanitary knowledge, bringing to the people in their own rude tongue tidings of great hope and joy. He is the creator of public opinion.

Yet all three are complementary to each other —all are necessary to the public health. Each working honestly carries forward the cause of sanitary medicine, the one to seek and find, the one to apply and the other to bring it all to the man in the street, the wife beside the cradle and the child in his school.

Stephen Smith the Health Association Centenarian, Dies

DR. STEPHEN SMITH, pioneer in sanitary reforms, a founder of the American Public Health Association, and, more recently, an able advocate of the thesis that a man normally should round out one hundred years of life, died at Montour Falls, N. Y., August 26. He would have been one hundred years old if he had lived until February 19. His whole activity was in public health lines and his published books, "Who is Insane," depicting his experience as a lunacy commissioner, and "The City That Was," telling of conditions in New York before his sanitary reforms—are handbooks for public health workers.

Dr. Smith followed for the term of his natural life his own precept to "work and keep out of the easy chair," and his life work was one of rare public service. He initiated the campaign against the miserable sanitary conditions that characterized the New York of fifty years ago. Dr. Smith himself drafted the act creating the Board of Health and was the first administrator of its almost autocratic powers. The organization of the American Public Health Association was a logical extension of his campaign against preventable disease. The visible results of his activities are all the more remarkable because his work was instituted before sanitation became a science.

Health Association in Fifty-first Annual Meeting

THE fifty-first annual meeting of the American Public Health Association will be held in Cleveland, O., from October 16 to October 19. The Association headquarters are to be located at the Hotel Statler.

The various sections will offer programs covering the fields of public health administration, sanitary engineering, food and drugs, child hygiene, laboratories, industrial hygiene, and vital statistics. Tentative programs of these sections, appearing in the September issue of the *American Journal of Public Health*, indicate that the convention will be both interesting and instructive. Meetings will also be held by the provisional sections on Health Education and Publicity and Public Health Nursing.

Commercial exhibits, which always attract and interest convention visitors, are not to be omitted. Plans for this feature are already under way and contracts for considerable floor space are signed. The cooperative book-stall will be a new feature. The leading medical and general publishers of the country will unite in showing the recent and standard works covering the many fields which the interest of the health worker embraces.

The character of health work is such that, in the majority of cases, the workers contacts have a more or less definite geographical limitation. Association meetings and conventions offer to all an opportunity of broadening their circle of acquaintances and restimulating their interest in their chosen work.

AN INTERESTING health situation has developed in Chicago. Dr. Herman N. Bundeson, health officer, has taken the position that the social diseases under drastic methods are as amenable to control as any other communicable disease, and that his department will provide clinical units where diseased inmates of disorderly houses may (or must) receive consistent care, compulsory medical examination to determine the need of treatment. Placards placed by the Department of Health will indicate the houses which are foci of infection afford the essential incentive to clean up.

The opposition argues that for clinics to give to inmates of disorderly houses a clean bill of health would in effect cause the city health department to abet vice; that medical treatment cannot properly be forced upon any group of people; that additional health machinery means merely additional power for political manipulation. Public opinion is in the balance. Meanwhile, the public is gaining some basis of fact for the formation of public opinion. It must be conceded an anomaly to quarantine measles and ignore social diseases and already the public is alive to the fact that the work of a health department may be held to involve more than routine inspection and the keeping of records, or even putting up placards for chickenpox.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

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The Industrial Physician's Community Relations*

INDUSTRIAL medical practice should logically be coordinated with the activities of non-industrial physicians and with those of community health agencies, all serving with the common purpose of advancing the public health. With little doubt much of the existent tendency of the medical profession to view with the skepticism or alarm the growth of industrial medicine will be overcome by a demonstration of the value of cooperation between industrial physicians and other groups engaged in health work.

The relations of the industrial physician with the private practitioner may usually be maintained harmoniously and helpfully when establishment medical practice is conducted with the full regard for reciprocal rights which prevails among ethical physicians in non-industrial practice. The industrial physician because of his opportunities for continued contact with workers is enabled to be of great assistance to private practitioners in securing early diagnoses, in the maintenance of treatment, and in the subsequent follow-up observation of patients.

It is the belief of this committee that it is not the reasonable and proper responsibility of an industrial physician to treat cases of serious or incapacitating illness of non-industrial origin, except under unusual circumstances, such as those incident to the geographic isolation of an industrial establishment or in connection with a medical service-plan supported financially in whole or in part by industrial workers. Minor disabilities of non-industrial origin, if not incapacitating, may well be treated in the plant dispensary to the material advantage of the workers and employers. Services of this nature should not be paid for by employees. It is not an uncommon practice among industrial physicians to augment their incomes from this source. The procedure tends toward exploitation of workers and is to be condemned.

The committee, further, is of the opinion that it is unwise for physicians in the employ of industrial establishments to accept fees from workers for attendance upon cases of incapacitating non-industrial illness or for surgical operations for non-industrial conditions in such cases, when circumstances are such in the community in which a plant may be located as to permit of the placement of patients under other satisfactory professional care. It is obvious that attendance upon cases of the nature outlined is essentially a function of the private practitioner and not of the industrial physician.

Hospital Needs in Industry

There has not been displayed as yet, in most industrial communities, any notable tendency to adapt hospital organization to the medical and surgical needs of the industry. This is particularly true in regard to the hospitalization of cases falling within the scope of workmen's compensation legislation. Legal provisions limiting the amounts payable for hospital care of such cases have frequently led hospital executives to oppose the ready admission of compensation cases.

It is desirable that industrial physicians maintain such close relations with local hospitals as may assure for the workers in the industrial establishments which such physicians represent adequate hospital care in the event of serious injury or illness. It is particularly to be desired that there be in industrial communities hospitals with "open staffs" under the administrative control necessary to maintain high standards, in which industrial physicians may care for industrial cases demanding hospitalization. Competent industrial surgeons are at the present time able to secure in many types of cases surgical results superior to those apparently obtainable by general surgeons in regard to both end results and periods of disability.

In most large cities there are dispensaries to which ambulatory cases may be referred for diagnosis and may, through such agencies, secure for workers special services which are beyond the range of industrial medical department activities. It is certain, however, that there is frequent abuse in the utilization of such diagnostic centers by industrial physicians. Undoubtedly many cases are referred to dispensaries which could be adequately handled in plant medical departments through a slightly greater medical diligence the plant physician thus avoiding needless time loss with its attendant costs.

There are in the country [illegible] night clinics for industrial workers. There would be more if industria

*Report of the committee, consisting of Wade Wright, chairman, Robert S. Quinby, and W. Irving Clark, appointed to report to the meeting of the American Association of Industrial Physicians and Surgeons, May 22, 1922, on the following question: "Define the proper limitations of the industrial physician in relation to general community health activities as well as the extra industrial cases of illness or disability and to the work of the private practitioner, hospitals, community dispensaries, and diagnostic clinics."

physicians would in behalf of industry voice a demand for such service. Each visit to a night clinic may represent a day's work saved to an industrial organization.

Group diagnostic clinics prepared to render diagnostic service upon a moderate fee basis are being established in many medical centers. Industrial physicians and their patients may greatly benefit by access to clinics of this type, but it is the belief of this committee that in most instances obscure cases of non-industrial origin appearing in industrial dispensaries should be referred directly to private practitioners who may then call upon such consultants or groups of consultants as may be required. There exists in many industrial communities numerous voluntary health agencies, such as district nursing associations, tuberculosis and venereal disease clinics and bureaus for occupational therapy and vocational rehabilitation. Industrial physicians have in most such organizations valuable resources with which to supplement the diagnostic and therapeutic facilities available in industrial medical departments and appropriate use should be made of them.

Health work in industry is an intrinsic part of health work in the community.

Need of Adequate Artificial Illumination*

Proper Lighting Means Protection and Improved Production to Industrial Workers

By G. BERTRAM REGAR, Illuminating Engineer, Philadelphia Electric Company, Philadelphia, Pa.

ARTIFICIAL lighting is a subject that is little understood in general, and still less appreciated. Perhaps no other achievement has added more to the progress of the world's accomplishments than has lighting. In prehistoric times, man's day was that of the sun; but with the control of fire, came light. Thus, artificial light came to be associated with safety, warmth, and pleasure. Its growth is closely allied with enlightenment and culture; and even at the present time, we find both missing in those parts of the world where lighting has not progressed. In fact, the torch is the emblem of progress. Today, the idea of artificial lighting is interwoven with thoughts of beauty in the home, success in commerce, safety in the streets, and efficiency in industry.

Lighting service, as a rule, has not reached the high standard attained by the power and appliance service. The plant engineer can readily determine the power necessary, and there is little complaint of its performance. The housewife would not give up the use of the many labor-saving devices. The lighting installation, however, is very frequently subject to the criticism that some other installation is better.

The Creator gave the sun and light, and there seems to be an instinctive group psychology against paying for light as a service. On the other hand, the average person will concede that man is entitled to considerable credit for manufacturing the power that makes possible the use of a flat-iron or a vacuum cleaner. I am convinced, therefore, that it is not so much a matter of economy as it is one of a lack of appreciation of the great service which light can be made to perform. Its potentialities are perhaps greater than those of any other commodity; and its cost is only a small percentage of the general overhead expense of the home, the store, or the factory.

Lighting has three basic principles: (1) Utilization. Successful business methods demand that the lighting be good; and good lighting is efficient, because the predominating factors have been treated in a scientific way. (2) The physical effect. With the recognized advantages, from the commercial and the industrial standpoint, of a higher intensity of illumination, if the eyes of our people and of future generations are to be conserved, then careful consideration must be given to the subject of proper direction, diffusion, and color of lighting. (3) The psychological effect. With the advancement of enlightenment, we have, naturally, been educated to the comforts and refinement of our present day lives; and the artistic effect of lighting, therefore, plays a prominent part as to whether it is pleasing or distasteful to the eye. It must, however, be borne in mind that the relationship of each of these to the other varies according to the class of installation;

Spinning mill having drop cords with bare lamps. The lighting is very poor and causes eye strain.

*Read before the Fifteenth Conference of Pennsylvania Industrial Physicians and Surgeans at Harrisburg, Pa., May 25, 1922.

Same mill after changes were made, showing a splendid example of good lighting

that is, whether home, store or factory.

Considering the subject from the utilization standpoint, it has only been in the past three or four years that lighting, in the minds of factory executives, has been taken out of the janitor-service class and placed where it belongs with automatic machinery and labor-saving devices. Manufacturers are beginning to realize that it is a substantial aid to production. The state authorities, recognizing that increased output and the protection of the limbs and eyesight of the working classes are a distinct economic gain to the state, are not slow to take advantage of its great potentialities and are adopting so-called factory or industrial lighting codes.

In these state codes, intensities of lighting for various classes of operation are specified, depending upon the nature and fitness of the detail to be observed, the closeness of application required, and the color of the working surfaces. These intensities are intended only to protect the life and, to a reasonable extent, the eyesight of the operator.

Mr. E. E. Simpson of the Travelers' Insurance Company is authority for the statement that during the year 1919 there were more than two million industrial accidents causing loss of time. Of this number, twenty-five thousand were fatal. "There is some foundation for assuming that 18 per cent of our industrial accidents are due to the defects in lighting installations. On that basis, the services of one hundred and six thousand men for one year are lost annually because the illumination provided is not adequate for the safety of the workman. That this condition could exist year after year is all the more reprehensible because of the fact that the remedy is so easily applied and has beneficial results in many ways other than the safety involved. Accidents caused by carelessness, inattention, or ignorance can be eliminated only by a long-continued, painstaking, educational campaign, often involving a change in long-established habits. Elimination of accidents due to inadequate or improper lighting is simply a matter of purchasing the proper equipment and installing it under competent direction. In fact, it seems proper to include illumination in the list of mechanical safeguards for the reason that the lamps and reflectors provide a guard. Illumination points out the hazards just as effectively as a railing points out the danger of and provides protection against the hazard of a revolving flywheel."

Industrial Lighting Survey

However, Government requirements for lighting are concerned only with protection, and have no bearing upon economical production which necessitates higher intensities than are required in the state codes.

The necessity for a more general use of artificial lighting, especially in the larger cities, has been brought about by the centralization of business, which has resulted in the increase of building heights, with a corresponding lessening of the sky angle and, therefore, less natural light.

In a recent survey of industrial lighting installations, it was found that 25 per cent of the work done was under artificial lighting; and in many individual cases, as high as 80 per cent was under those conditions.

A plant manager, in planning for operation, must include in his general scheme a means of providing artificial illumination. This necessary expense is only an initial investment, and is a sound investment, if the system is well planned to give proper and adequate illumination. In plants with existing installations, but poorly lighted, it will be found economical to discard the old system and install a modern one. Recommendation as to intensity of illumination depends, of course, on several factors such as the cost of electric energy, the number and the wages of employees, and the value of their output.

Several scientific investigations have recently been made in the study of the speed of discrimination. Dr. Ferree has found that a change of from two to ten foot-candles will practically cut in two the time required to recognize the details of a small test-object; Dr. Luckiesh's experiments have shown that the speed of reading a page of Old English type can be increased fully 25 per cent by the same change in illumination.

In the field of so-called "productive intensity tests," an investigation conducted at the Dover Manufacturing Company's plant showed an increase in production of 12.2 per cent, due to the installation of a modern lighting system, at an increased lighting expenditure of only 2½ per cent of the pay roll. The old system gave an average illumination throughout the room of about 0.7 foot-candles, with an average of 4 foot-candles at the tool-points. The modern system averaged 13 foot-candles.

Another investigation, conducted in the General Electric Company's Schenectady shops, showed that increasing the illumination from 3.8 foot-candles to 11.4 foot-candles, in a section devoted to semi-automatic buffing, increased the production 8.6 per cent. The increased cost of lighting amounted to 0.4 per cent of the increased value of production.

A steel machine shop in Chicago, by increasing the illumination from 3 foot-candles to 11.7 foot-candles, showed an increase in production of 10 per cent with an increase in the lighting cost, of 1.2 per cent of the pay roll.

If an operator, because of the good illumination, saves in more production or in the better quality of the product an equivalent of only three minutes per diem for three hundred days, he will offset the annual cost of the illumination from a 100-watt lamp. Good illumination is, relatively speaking, inexpensive; and its intro-

A machine shop having local lighting.

duction and maintenance are good investments on the part of the factory owner.

Comparative Low Cost

These estimated figures, illustrating the low cost of good lighting compared with the cost of labor, also illustrate how large may be the losses unconsciously sustained by the factory owner from the use of a poor lighting system. An operator losing, say, thirty minutes a day, loses more than sixty dollars per annum, or about ten times the cost of giving him good illumination.

If a change in the lighting installation has for its purpose a saving in energy consumption, it should be carefully considered. The above comparisons show definitely that a gain in increased output due to good lighting overbalances any possible saving in energy. The lighting installation must meet the requirements of good illumination, even though it involves an increased energy cost.

Of the utmost importance is the question of maintenance. This apparent negligence applies not only to the lighting installation, but to the painting and to the windows and skylights as well. When we consider that there is an absorption loss of approximately 10 per cent of the light, through clear glass, we can, in a measure, realize the loss due to the preponderance of dust- and dirt-covered lamps and reflectors existing in our industrial plants. This is true, also, of the coloring of walls and ceilings the reflection factors of which mean so much from an efficiency standpoint.

Last, but not least, is the question of lamp renewals. The long lamp-life seems to be the policy in the majority of our installations. The plant engineer fails to differentiate between useful lamp-life and physical lamp-life. The useful life of lamps is approximately one thousand hours. From the initial burning, there is a gradual drop in the illumination until, at the end of this period, the decrease represents, approximately 15 per cent of the initial light, with a decrease, during the same period of but 3 per cent of the current energy. The decrease in illumination after the one thousand hours is of a decidedly greater percentage and the loss in cost efficiency warrants replacement of the lamps.

Cooperation between employer and employee means consideration of each for the other. Physical welfare is of mutual benefit. No one needs to emphasize the absolute necessity of protecting the eyesight of the worker. If sufficient illumination is not provided, the eyes are continually subject to strain in their attempt to discern detail. This rapidly fatigues, lowers the bodily efficiency, and may produce permanent injury. On the contrary, with plenty of light, if brilliant sources are permitted to be in the range of vision, bad conditions exist. We oftentimes hear the statement that a room is over-lighted. With the low intensity prevailing generally, in comparison with outdoor illumination, this statement is without foundation. It is only because the layman considers the glare, instead of the illumination effect.

Glare Can Be Eliminated

A concrete example, of which there are many, comes to the writer's mind from a complaint of one of our Philadelphia weaving mills. The installation consisted of three drop cords, with bare 50-watt lamps over each loom. The lamps were directly in the range of vision of the workers, and were the cause of headaches, of which the management received many complaints from the large force of women employees. The installation was corrected, so that two ceiling outlets, equipped with R. L. M. reflectors and 100-watt bowl enameled lamps, were installed between each two looms; and the drop-cords were equipped with steel-dome reflectors. The local lighting was necessary in order to prevent shadows from the rapidly-moving shuttles. The results conserved the eyesight, increased the lighting intensity, and improved the output.

Same shop with general lighting installation made

Subjecting employees to continuous work under insufficient illumination eventually means failing eyesight, thus incapaciting experienced workmen at the very time when they should be yielding the biggest return on the investment made in their training.

The question of shop sanitation is one that is receiving increasing attention for an employer fully realizes that a healthy operator is an asset to his plant Proper illumination is one of the greatest helps in attaining this result. A dark corner, for instance, tends to gather dirt because of its being less observed by the factory management.

Dark-colored or dirty walls are not only depressing but cause a loss by absorption of the light falling on them. The reflection factor of white walls is about 80 per cent, whereas only about 48 per cent of the light striking it is reflected from a light-green wall, and only 15 per cent from a dark-gray wall.

Psychology plays an important part in mill management. A well-lighted, well-ventilated and clean factory promotes a more cheerful feeling, and tends to prevent a discontent which, in many cases, causes labor trouble. It is obvious, therefore that a well-lighted plant increases production, reduces spoilage, conserves vision, reduces accident loss, and aids sanitation, thereby promoting health,

Obviously, these conditions, in turn, promote contentment and loyalty, thereby reducing labor turnover. Carnegie once said, "You can take away my factories and my plants; take away my railroads, my ships and my transportation; take away my money; strip me of all these, but leave me my men; and in two or three years, at the most, I will have them all back again."

The Heart Disease Problem in Industry*

Ordinary Heart Infections Rather than Special Occupation Cause Symptoms

By Paul D. White, M.D., Boston, Mass.

THE relationship of the individual with cardiac symptoms or signs to industry is a question much debated and of growing concern. Experiences in the cardiac clinic of the Massachusetts General Hospital, in the cardiac problems of the soldiers of the great war and after, and in a private practice in heart disease have presented to my mind certain conclusions that I believe are worth reporting.

First of all, there is no such complete entity as industrial heart disease. Cardiac symptoms and signs in the industrial worker are the result almost invariably of nervous fatigue or effort syndrome, or of damage by rheumatic fever, syphilis, arteriosclerosis, high blood pressure, or hyperthyroidism. Sometimes two causes are responsible in the same individual. It is likely that in some cases the wear and tear of work may be responsible in part for hypertension or arteriosclerosis, but even more may the wear and tear of late hours, overeating, family worries, and alcohol play their part. Rarely lead poisoning helps in the progress of arteriosclerotic heart disease, but this is only a drop in the bucket.

Symptoms of serious heart trouble may first appear during work, and often some unusual strain or fall or blow is held responsible for the whole trouble when as a matter of fact the stage was all set by progressive insidious change in the heart and merely awaited the proverbial last straw. This fact is notably applicable to industrial workers after they have passed fifty years of age, but not infrequently the rapid deterioration of a syphilitic heart in the early forties will cause incapacitation and death in middle age. One of the most vital defences against these bolts from the blue for the employer in such cases is regular periodic physical examination of the employees. There is, of course, no question that in many of these cases the industry is the exciting factor for the first appearance of symptoms, but also almost invariably industry is not responsible for the fundamental heart disease. At times the aggravation may be extreme, as in the unusual but unquestionable reported cases of valve, heart wall, or aneurysmal rupture under strain. So far as pathological examinations in these cases are concerned, however, the valves, the aorta, or the heart muscle are generally found diseased, and with careful physical examination this disease might have been discovered before the accident and the individual properly treated and given lighter work.

There is no such complete entity as industrial heart disease. Cardiac symptoms and signs in the industrial worker are the result almost invariably of nervous fatigue or effort syndrome, or of damage by rheumatic fever, syphilis, arteriosclerosis, high blood pressure, or hyperthyroidism and rarely result from accidents such as wounds to the heart, a blow on the chest, or unusual physical strain.

Industry has to deal with both the true heart disease type and the functional disorder type. Thousands of the latter have been classified as cardiac cripples and denied work. It is for industry, with proper protection to itself of course, to find a place not too exacting for these.

Accidents may involve the heart in three ways. In the first place, there may be the immediate reflex cardiac disturbances from injury to other parts of the body. Palpitation and tachycardia are of course frequent accompaniments of accident, so frequent in fact that we do not misinterpret them as evidence of actual cardiac injury. The second way in which the heart may be involved is, however, often very misleading and puzzling. Following accidents particularly severe ones in [illegible] where there is a good deal at stake, effort syndrome is very common and may be mistaken for actual heart disease. Palpitation, dyspnea, and even precordial pain may be present without any actual heart damage. Some of the cardiac irritability may be shown as premature beats in [illegible]

*Read before the American Association of Industrial Physicians and Surgeons, St Louis, May 23, 1922.

oxysmal tachycardia. However, other evidences of a nervous high-strung temperament are always present to give the necessary clues,—restlessness, evidence of worry, tremor, sweating and tachycardia on physical examination, exaggerated knee-jerks and so on. Effort syndrome of this type is, of course, commonest in young people who have inherited a nervous temperament, but it may occur in middle age also if there is enough provocation.

In old people, although it is still possible to find nervous irritability, the possibility or probability of arteriosclerosis should make us more wary in diagnosing effort syndrome alone. When the two are combined—arteriosclerosis and nervousness—the task of discrimination of the percentage of symptoms due to the one and to the other may indeed be difficult. However, it may safely be said that the vast majority of cardiac symptoms following accidents are due to extra-cardiac causes acting reflexly through cardiac nerves.

That actual injury to the heart may come from accident is well recognized. There are three ways in which this injury may be produced. First, there are the rare penetrating wounds of the heart and great vessels about which there can rarely be any difficulty in recognition. Then come the even rarer cases of crushing injuries to the chest or blows or falls resulting in rupture of ventricular or auricular wall, of aorta, or of valve cusps. Finally, there are the cases of uncertain frequency but also doubtless very rare in which sudden violent effort causes heart damage—rupture of valves, of ventricle, or of aortic aneurysm.

Barié's Valve Rupture Reports

An interesting account of a series of 38 cases of ruptured valves of the heart was published in 1881 by Barié. He collected 31 cases from the literature and added 7 more cases previously not reported. There were 19 cases of rupture of the aortic valve cusps, 16 of rupture of the chordae tendineae or columnae carneae supporting the mitral valve, and 3 of rupture of attachments of the tricuspid valve. He reported no cases of pulmonary valve rupture and I have found but one in the literature. Of the 19 aortic valve ruptures, 10 were what Barié called spontaneous, —that is, not the result of external trauma. Lifting of great weights, pushing a heavy load, running very hard, climbing a mast in a storm were the type of effort resulting in the aortic valve rupture. Falls on hard surfaces and heavy blows or kicks on the chest were the type of external trauma resulting in the same phenomenon. Both can be accounted for by the sudden increase in pressure on the aortic valve with the aorta full of blood, that is, in early diastole. Barié produced aortic cusp rupture experimentally in hearts freshly removed from bodies immediately postmortem. He found that water pressure varying from 116 mm. to 484 mm. of mercury ruptured the cusps in several cases. Actual figures were 116, 184, 278, 292, and 484 mm. On one occasion he distended the aorta *in situ* and then struck the thoracic wall with a hammer. On examining the heart he found a tear in the aortic cusps. Of 11 cases autopsied, mention of the number of cusps torn is made in 9. In 6 of the 9 two cusps were injured and in 3 but one cusp. The septal cusp was most often damaged. No women were found with rupture of the aortic valve.

In Barié's series, spontaneous rupture was more common than external trauma rupture in the ratio of 5 to 2. In only one case experimentally was he able to break the mitral attachments and for that he had to exert an intra-ventricular pressure of 1,050 mm. of mercury; in the same heart he broke an aortic cusp with 184 mm. mercury pressure. He found almost invariably that the ventricular wall broke before he could rupture either the tricuspid or the mitral valve. There was never sudden death in Barié's cases but the prognosis was almost invariably grave, death resulting with heart failure (and marked cardiac hypertrophy) after a few weeks, months, or years.

In 1910 Ranelletti compiled the cases of valve rupture from the literature. He found 49 cases of rupture of the aortic valve, 27 of the mitral, two of the tricuspid and one of the pulmonary.

The question of especial interest is as to whether or not healthy valves will tear. There are enough autopsies reported to show that such is possible, in fact a large number of the aortic valve ruptures seemed to be in fairly normal hearts. Without doubt, aortic sclerosis and syphilis predispose to rupture and less pressure would be needed in such cases to break the cusps than in normal cases. Rheumatic involvement also may be a factor. The mitral valve cases have nearly always shown evidence of disease—endocarditis, sometimes malignant, which had weakened the chordae and columnae. Occasionally holes and tears in the auriculo-ventricular valves have been found in hearts as the result of ulceration without any exciting factor such as sudden effort or external trauma. At times, on the other hand, the endocarditis seems to have followed the trauma.

Rupture of Auricular Walls

Rupture of auricular and ventricular walls and aorta are much more common than rupture of the valves and were recognized much earlier. It is said that Harvey reported the first case, a rupture of the left ventricle, while it was about one hundred and fifty years later that Senac in 1778 reported the first case of rupture of valve cusps. Heart and aortic ruptures have been reported frequently. The same statement, I believe, may be made concerning them as concerning valve ruptures. Although the healthy ventricle, auricle, or aorta may be torn if sufficient pressure, almost invariably the result of external trauma, is exerted on it when distended with blood, it is quite certain that such rupture is far more apt to occur if the heart wall or aorta is diseased as in cardiosclerosis or aortic aneurysm. Spontaneous rupture without sudden effort means disease. Examples of healthy men traumatized to the extent of rupture of heart or aorta are as follows: (1) A young man of 23 years of age fell 45 feet and died almost instantly. At autopsy a tear 25 centimeters long was found in his left auricular wall with his pericardium full of blood. Also there was a rupture of the right lobe of the liver. (Howat, *Lancet*, June 2, 1920.) (2) A healthy laborer of 40 years of age was struck by a large mass of falling earth a glancing blow on the back, and killed instantly. At autopsy his left pleural cavity contained 38 ounces of blood. Opening into it were the gaping ends of the descending aorta cut as if with a knife at right angles. The break was 3½ inches from the aortic valve. The aorta was healthy. (Copeland, *Jour. A.M.A.*, November, 1914.)

The last point to consider with reference to the effect of accident on the heart and aorta is as to whether partial injury can be caused to the wall of either without actual rupture; i.e., can there be a tear or weakening which may result in aneurysm of a healthy heart or aorta.

Of this we have no certain proof. It is a possibility, but in view of lack of proof we should consider it a very remote possibility. If the heart or aorta is diseased to begin with, there is far more chance of such an occurrence.

Cardiac Cripple in Industry

In answering the question as to whether cardiac cripples are of use in industry, accurate diagnosis is in the first place all-important. A good many workers are limited in their strength or endurance by cardiac symptoms but a large percentage of these have not heart disease.

The appalling frequency of the irritable or nervous heart or effort syndrome, as the condition has also been called, in the armies of the great war is to some extent duplicated in civil life. Over one-fourth, actually 28 per cent of a group of 450 patients with cardiac symptoms or signs that I have seen in consultation have had only functional disorders so far as the heart is concerned,—effort syndrome, extrasystoles, or functional murmurs,—and have revealed no real heart disease. This is even more true of industrial workers and of the veterans of the world war still sheltered under the wing of the government. Of 53 soldiers with heart symptoms or signs labeled as heart disease, whom I have examined recently at the Public Health Service Hospital on Parker Hill in Boston, 30 or 57 per cent showed no evidence of heart disease.* They had all tried to work, some of them conscientiously and some of them not conscientiously. Their symptoms had made them seek relief. There is little question that they nearly all have real symptoms, and disagreeable ones too, but the important points are these,—their symptoms are not symptoms of organic heart disease and these men are better off at work than idle. Idleness is at least as harmful as over-exertion. There is a happy mean; there is work somewhere suited for these men, and they should be urged to find it and not be invalided and labelled for life as cardiac cripples. They have long, and should have, useful lives ahead of them. Merely because someone has elicited a story of dyspnea on exertion or excitement or a systolic whiff or an extrasystole at the apex in one of these chaps, he should not be stigmatized as a cardiac. I do not mean that these men are deceitful, most of them are not;—their symptoms are real. But many persons have irritable hearts and might easily stop work if they paid attention to every premature heart beat or faint sensation. Some of these men will do well at some leisurely occupation in the open air; others will do just as well indoors.

It is necessary to classify the individuals with real heart disease according to the cause of their heart disease and according to their functional capacity, as well as in the incomplete old-fashioned method of stating the structural defects present. Thus, given cardiac hypertrophy, or aortic regurgitation, or auricular fibrillation, it is of great value in judging the future outlook as well as the present capacity to know whether rheumatic fever, syphilis, arteriosclerosis or other factor is chiefly responsible. Take for example two men of 40 years of age with aortic regurgitation and with few symptoms. Is the cause rheumatic infection or syphilis? If the latter, the future is apt to be dark, death often supervening within a few years, while in the former case there may be many years of useful work ahead. Of course, it is also important to treat these cases properly, with antiluetic measures if syphilis is the cause.

Etiologically we should try to diagnose a given case as congenital, rheumatic, syphilitic, hypertensive, thyroid, arteriosclerotic, and so on. Structurally we can state the presence or absence of cardiac enlargement, valve lesions, aortic dilatation, or pericarditis. And functionally we should state the kind of arhythmia or other disorder of the heart beat which may be present, and whether or not there is evident heart failure. There are two important types of failure,—that in which the presenting evidence consists of dyspnea and edema, the so-called congestive failure, and that in which pain is paramount, the so-called anginal failure. Care should be taken not to call heart pain acute indigestion simply because there is some gas in the stomach or bowels.

Finally, there are all graduations of failure and functional capacity of the heart. These are best expressed as follows: (1) No failure—ability to carry on customary activities without dyspnea or pain; (2) Slight failure—partial restriction of ability to carry on customary activities without symptoms; (3) Moderate failure—considerable restriction of this ability; (4) Marked failure—inability to carry on any customary activities without dyspnea or pain; (5) Extreme failure—symptoms and signs persisting even with the individual at rest in bed.

Functional Tests

Simple questions will suffice to determine roughly in the scale represented above where an individual fits, but for more definite decisions as to ability to undertake certain work some tests are necessary. All the tests we have are rough guides only. They are in the main but clues to the physical fitness of the individual. Since physical fitness includes cardiovascular efficiency, to that extent only may such tests be called cardiovascular functional tests. Dr. Brittingham, working in my clinic this past year, tried out the two most suitable tests of respiratory and exercise type, vital capacity measurement and dumb-bell lifting. The vital capacity test consists of the record of total amount of air in cubic centimeters which can be expired into a spirometer after a full inspiration—the best of three trials being taken. This is a quantitative measure of dyspnea and may be normal in heart failure of the anginal type. It has wide ranges of normal, body surface being used as the measure for standardization. General physical fitness is another factor as well as body surface to cause normal variations. For example, the average charity class of the community gives a lower average normal than those who have lived under better conditions of life. Well marked reductions of vital capacity, below 70 per cent of the estimated normal, almost always mean disease in heart or lungs, and we must remember that lung pathology may give us low readings as well as cardiac disease. Exceptionally, individuals, large or small, may give very low readings, even with perfectly normal hearts and lungs. Psychoneurosis, such as occurred in shell shocked soldiers, is in these the cause. Also we must remember that individuals with well marked heart disease without heart failure may have perfectly normal vital capacities. Thus this test is of limited value, and reductions below the normal standard must be interpreted with care so far as the heart is concerned.

The best example of the exercise tests which Brittingham tried was the test of the blood pressure reaction following dumb-bell lifting. The use of small dumb-bells proved futile because often the skeletal musculature would become exhausted before any distinct cardiovascular reaction could

*In another group of 100 unselected, so-called "cardiacs" in this same hospital, Dr. McCrudden found 64 without heart disease.

be secured. Of course, in patients with obvious heart failure one might use small dumb-bells, but for these the exercise test is unnecessary. Swinging two twenty-pound dumb-bells from arms-length overhead down between the legs and back at the rate of twenty times a minute in the course of one-half to one or two minutes so acts on the cardiovascular system that a delay in rise of systolic blood pressure beyond the normal of one minute is finally produced with also a delayed fall back to the normal pre-exercise level. This has proved a rough guide to physical fitness but little more, for examples such as the following may be multiplied. One day two men were tested; one with rheumatic heart disease and aortic regurgitation went easily through the test for a minute without any delayed rise of blood pressure; the other with normal heart and effort syndrome was unable to finish the minute's exercise and had a distinctly delayed rise. As a test of general physical fitness such an exercise is of value and may be simple observation of the way the individual performs will do about as well as the laborious blood pressure estimations and a bar will do as well as dumb-bells.

After determining by simple observation and questioning, and by the use of some simple exercise test what a man's functional physical capacity may be, the final answer to what he is capable of doing must come from testing him at the work itself. Short physical efficiency tests are all and always open to the following three objections: first, the test is short and the work long; second, the test is carried out under much more excitement, probably, than the work; and third, the test and the job may utilize altogether different muscles.

In conclusion there are thousands of individuals with irritable hearts or with real heart disease who are fit for work and who will be benefitted by work. How can we get them to the work? In the first place we must convince them that they can do something, that they have after all a place in the community. Second and perhaps more difficult, we must persuade industrial employers to take on these people with irritable hearts and true heart disease. From the individual with simply an irritable heart there is little to fear—nothing in fact from the cardiac standpoint, but sometimes nervous prostration. In the case of the true cardiac, however, there is often trouble ahead. With perfect reason employers must not be held responsible for the onset of symptoms of failure in these individuals whom they have been kind enough to take into their employ. They must be protected, especially in the case of the man with syphilitic heart disease. It seems to me that there would be no difficulty through the country at large to get suitable occupations for people with heart disease if absolute assurance could be given their employers in accepting them that the onset of crippling symptoms or signs referable to their circulatory system could not be laid at the door of the industry. This is a reasonable solution of the difficulty now before us. By this scheme a person with an irritable heart or with heart disease may work wherever he is qualified mentally or physically—it does not matter at what job.

Finally, all this discussion about the heart in industry, important as it seems, may some day, centuries from now, seem ancient indeed, when the prevention of heart disease in youth by the extensive wiping out of rheumatic infections, syphilis, hyperthyroidism, and early hypertension is an accomplished fact. By the time arteriosclerosis sets in to limit cardiac capacity in that far-distant future, the life of work will have been duly completed. Therefore, while we are busy trying to decide what to do now with our cardiac cripples, let us also be building the foundation of that far more important work, the prevention of heart disease.

Industrial Hygiene Section of Public Health Association

Joint sessions of the Industrial Hygiene Section of the American Public Health Association and the Ohio Association of Industrial Physicians and Surgeons will be held during the fifty-first annual meeting of the American Public Health Association scheduled to take place in Cleveland, O., October 16 to 19, 1922. Dr. Wade Wright, as chairman of the Industrial Section of the Association, and Dr. Sydney S. McCurdy, president of the Ohio Association, will preside at the meetings. The special program follows:

TUESDAY, OCTOBER 17, 9:30 A. M.

(1). Business meeting, Industrial Hygiene Section, American Public Health Association.
(2). The Tuberculosis Problem in Industry (Stereopticon Illustration). Horace John Howk, M.D., assistant medical director, Metropolitan Life Insurance Company. Physician in charge Metropolitan Life Insurance Sanatorium, Mt. McGregor, N. Y. Discussion led by H. A. Pattison, M.D., supervisor, medical service, National Tuberculosis Association, New York City, followed by James A. Britton, M.D., International Harvester Company, Chicago.
(3). Industrial Dermatoses—Stereopticon Illustration). Harold N. Cole, M.D., associate professor Dermatology, Western Reserve University, Cleveland. Discussion by Charles Baskin, Akron, O.
(4). Health Education in Industry—(Stereopticon and Motion Picture Illustration). Ralph W. Elliott, M.D., manager, Medical Department, National Lamp Works of General Electric Company, Cleveland.

WEDNESDAY, OCTOBER 18, 9:30 A. M.

(1). Business meeting, Ohio Association of Industrial Physicians.
(2. President's address. Sydney S. McCurdy, M.D.
(3). Causes of Absenteeism Among Store Workers. Charles A. Swan, M.D., medical director, Halle Brothers Company, Cleveland. Discussion led by A. B. Emmons II, M.D., executive secretary, Harvard Mercantile Health Work, Boston.
(4). Computation of Partial Loss of Vision and Hearing. William Mehl, M.D., Buffalo, N. Y.
(5). Mental Hygiene in Industry. Frederick W. Dershimer, M.D., National Lamp Works, Cleveland. Discussion led by A. G. Cranch, M.D., medical director, National Carbon Company, Cleveland.
(6). Heat Hazards in Industry. G. H. McKinstry, M.D., medical director, Spang, Chalfant & Co., Pittsburgh.
Headquarters are at Hotel Statler.

Industrial Home Work for Children

The study of industrial home work of children, U. S. Children's Bureau Publication No. 100, was made in Providence, Pawtucket, and Central Falls, R. I., in 1918, at a time when none of the labor laws of the state applied to work done in the home. It was found that at least 5,000 children under 16 years of age had done home work in the course of a year, and that over 7 per cent of all the children 5 to 15 years of age, inclusive, in the three cities had been engaged in such work during that period. Of the 2,338 children who had worked at least one month out of the year and had received compensation, 4 per cent were under 6 years of age and 46 per cent were under the age of 11. Injuries, especially accidents from machines installed in the homes, in addition to eye strain and fatigue reacting upon school work, were frequent. A possible danger to the health of the community was found in the fact that large numbers of families reported doing home work while members of the family were ill with infectious diseases. In some cases the sick persons took part in the work. The testimony of manufacturers using the home work system indicates, the report states, that industrial home work in this district could be abolished with few business losses. Shortage of labor was the chief reason given by manufacturers for the employment of child labor in the home. Others explained that home work saved in overhead costs, while some made the claim that they were actuated in its use chiefly by motives of charity.

Problem of the Mental Misfit in Industry*

Mental Hygiene Will Help to Solve Many Maladjustments in Industry

By GEORGE K. PRATT, M.D., Medical Director, Massachusetts Society for Mental Hygiene, Boston, Mass.

THE student of industrial conditions is quickly impressed by the fact that the problem of the mental misfit in industry, like that of the army, finds a common source in the community in general. The worker, that all inclusive term, is also the soldier, the scholar, and the citizen. That he may at times be maladjusted in the factory is as certain to be as that he is occasionally out of tune in a military environment or in that of the university.

While today, courts, schools and army have all to some extent, at least, readjusted their mechanism to allow for recognition of the individual and his character differences, industry has lagged behind. With a few notable exceptions, modern industry appears still to think of its shop personnel in terms of so many "hands," rather than so many "hands" plus an equal number of minds and nerves and instincts and emotions. In the past decade, tools, materials, shop practice, and machines have been standardized to a high degree. Automatic machinery more and more supplants human effort in an attempt to reduce even minute variations in the appearance and quality of the finished product. The modern industrial concern has succeeded in bending to its indomitable demand for uniformity every item concerned in production but one, the worker. He alone resists fusion in the smelter of homogeneity; and if, during the process, his rebellion should boil over then industry has participated in the production of another misfit.

As one may reasonably assume that the type of worker manning industry is essentially the same as that which comprises the bulk of the community, it is equally reasonable to expect that he will possess a similar susceptibility to those factors which make for mental impairment, allowing for the differences of industrial coloring to his symptoms. The community is dotted here and there with feeble-mindedness; so is industry. The community is handicapped by its constitutional inferiors and neurotics; so is industry. The community has its rebels against the civil and social codes in its psychopaths and its irreconcilables, while industry finds it necessary to contend with its radicals and agitators.

Just as some communities today deny the existence of a mental health problem within their borders, so do some industrial concerns reject the suggestion that a goodly portion of intramural friction, excess spoilage, high labor turnover, excessive accident frequency, and a dozen and one other shop problems whose ultimate expression is to be found in increased production, lowered dividends, and augmented plant cost and insurance, may all have a common source in mentally insanitary conditions within their own confines. The manager of a large paper mill derided the suggestion that a falling off in production and a seething unrest among the operatives of a certain roll mill might have its origin in the instability of temper and fluctuation of purpose of a newly appointed foreman, who was obviously on the edge of a maniac-depressive upset.

Accident Repeaters

An automobile factory installed at great expense an elaborate system of automatic safeguards for their machines. Ten months later they were deeply concerned to find that their accident frequently had declined only about one half of what they had been led to hope. Analysis of the figures, however, showed that while the total number of accidents remained unduly high, they were occurring to a smaller group of employees. In other words, under safeguard conditions, most of the accidents were occurring to a relatively small group of "repeaters" who were being injured again and again. Several of this group were later found to be definitely feeble-minded; and a few more to be emotionally unstable and negligent to an unemployable degree. This incident suggests a parallel between the two mental mechanisms of the industrial accident repeater and the court recidivist.

Feeble-mindedness in industry is not, however, the wholly unmitigated menace it often appears to be. To be sure, an unrecognized defective may create much misunderstanding and trouble; and the fact that the higher grades especially give little physical hint of their limited intelligence makes their employment easy and subsequent detection difficult. Yet properly assigned and in certain jobs the defective is a satisfactory and even valuable worker. Indeed, in those industries where automatic machinery largely predominates, such as in automobile and, to some extent, in textile plants, the subnormal individual is often deliberately sought out. Average manual skill and even less than average intelligence are the easy demands that the automatic machine makes of its operator. Mental effort of a minimum amount is required, and the unimaginative, content-with-the-present mind of the defective plods along at his task quite unaware of the deadly monotony that quickly creates aggravated "labor strain" in his more highly endowed brother.

For such jobs the subnormal workman is an almost ideal type. He obeys without questioning, he is content to be led, he indulges in no dangerous "thinking" about his fancied socio-industrial place in the world, and, being essentially a creature of fixed habit, he soon learns the simple operation of his automatic machine, and cannot easily be induced to depart from the routine thereof. As witness to the veracity of these assertions, one has only to recall the testimony of divers employment managers, no small percentage of whom also assert that the highly automatized factory actually tends to place a premium on limited intelligence.

Most of the objections to the defective in industry appear to arise only when he is maladjusted. A man of twenty-six with a mental age of ten and a slow reaction time will almost certainly in the course of time sustain an injury if operating, say, a high-speed grinder, or perhaps a drill press where a measure of fine judgment is demanded.

An individual of this type, after

*Read before the Fifteenth Conference of Pennsylvania Industrial Physicians and Surgeons at Harrisburg, Pa., May 25, 1922

accurate psychometric tests, was discharged from the army as a "mental defective." He was employed on the recommendation of a Federal Vocational Training Board by an automobile firm as a helper on their loading dock. Admirably fitted for this work, being strong and willing, he soon sank into a comfortable niche, and gave eminent satisfaction. Indeed, so well did he and his job fit each other that, when an opportunity arose, a well-meaning and patriotically inclined foreman promoted him on his statement that he could operate an automobile to a position as truck driver. The short hauls in the plant between assembly department and freight platform were easily negotiated, and for a time all went well. Then one day during the absence of an older driver he was sent across the city to pick up a five ton load of motors and told to "hurry." The return trip necessitated crossing a railroad track, and the inevitable happened. A combination of slow reaction time and chronically defective judgment brought the loaded truck and a fast freight together on the track at the same moment, and, in addition to several thousand dollars' worth of damage to truck and motors, the family of the dead boy brought heavy suit. Properly fitted to a job compatible with his stunted intellect and abilities, a mental defective above the grade of imbecile seldom causes trouble. Misplaced, he is a never-ending menace to himself and all about him.

Problems of Psychoneurotic

Just as in the community we find friction, misunderstanding, and distress ever following in the wake of the psychoneurotic, so do we find similar symptoms in industry. The same mechanisms that seek to translate the mental difficulties and conflicts of the citizen into terms of physical discomfort and ill health operate in like fashion in the workroom. Neurasthenia, that type of mental disorder re-enforcing or simulating physical invalidism, takes as much toll in the shop as in the home; and its industrial severity is further enhanced by the fact that the foreman recognizes it for what it really is as infrequently as does the physician.

Poorly balanced emotional equipments do not stand out in bold relief as do crippled joints or a wooden leg; and when their owners become ineffective or give vent to easily aroused anger or seem constantly irritable, custom is prone to attribute such outbursts to "cussedness" rather than to a little understood "sickness."

Thus, the neurotic bank clerk, complaining of constant headaches, of early fatigue, of constipation and irritability, may be subconsciously struggling against dislike for a frivolous wife hastily married in a moment of sex madness. He is the emotional, if not the blood brother of the workman whose back habitually aches, whose anger blazes forth on trivial pretexts, who is over-sensitive and over-tired, whose work is often spoiled, and who, underneath all this, may be blindly revolting against a shop life whose only hold is the increased financial gain for his family that a coveted farm existence cannot offer. It matters little what the precise process may be, the outward results are similar; and, as the struggle lapses into chronicity, both bank clerk and workman are likely to become known as "grouches" or "touchy," and the rest of the crowd begins to edge away. The end results are invariably seen, but seldom the cause.

Industry teems with this unrecognized type. Production and accuracy of work are maintained at fearful expense to the neurotic's ability to repress, and often inefficiency crops out despite frantic struggling. Fatigue of mind brings about inattention and lack of concentration, just as fatigue of mood is marked by a mild depression, a tendency to worry and an unenthusiasm or even dislike for those persons or things formerly held in high esteem. The creation of imaginary, selfmade situations is a peculiarity of this type; and more than one serious injury has been sustained during a moment when the attention was distracted from the work in hand to the distorted fields of day dreaming in which the neurotic seeks comfort by artificial surcease from conflict.

More spectacular, certainly more vexatious and more difficult of detection, is the industrial psychopath and inferior. While psychiatry has long been more or less familiar with the unreliability, the penchant for precipitating trouble, and the habitual dissatisfaction of this type, industry only recently has come to connect his maliciousness and anti-social conduct with certain of its labor agitators and chronic "kickers." The neighborhood "grouch," perpetually suspicious, litigious minded, and socially disgruntled, has his counterpart in the grudge-bearing workman, querulous, resentful of authority, and always "in bad" with his fellows. This man is frequently of more than average intelligence and is often a skilled workman as well. But tenure of position is constantly being threatened by one sort of dissatisfaction or another. This job is too hard for the wages paid; that one is dominated by a disliked foreman; another is with a firm whose welfare personnel is thought too zealous; and so on, *ad infinitum*.

Other Industrial Misfits

In a paper on this subject by Southard, a short time prior to his death, Jau Don Ball is quoted as offering a list of industrial types who might well come under the designation discussed. Among these he names "queer guys, eccentrics, disturbers, querulous persons, unreliable and unstable fellows, misfits, the irritable, the conscientious, litigious, bear-a-grudge, peculiar, glad hand, gossipy, roving, restless, malicious, lying, swindling, sex pervert, false accusator, abnormal suggestibility, and mental twist types." While fully agreeing with Ball that "it could not be concluded from this or any other examination that all strikers, whether agitators or not, are psychopaths," one cannot escape the conviction that in the pathologic dissatisfactions, the anti-social activities, and the oftentimes brilliant but distorted cerebrations of these individuals, the seeds of more than one case of shop unrest and labor difficulty are to be found. Stewart Paton calls such manifestations "the defense reactions of 'inadequates'," while Pound believes such types have a lowered threshold of resistance to "labor strain." Classify them as you will, the fact remains inevasible that the industrial psychopath is a thorn in the side of every plant management. No shop is too small to harbor at least one of them, and one who may be especially maladjusted can destroy in a week the entire morale of a plant which required years of patient effort to build.

It is felt desirable to make brief mention of two other types of mental misfits in industry. One consists of a group of employees who develop certain mental disorders on the job. Most common of these conditions is developing general paresis, a premature arteriosclerotic process, or an incipient dementia precox. While causative factors differ in each, they all have a common initial symptomatology in "change of character." Be ware of the old and trusted workman

whose shopmates confess to puzzlement because he seems "different." Perhaps, from a quiet, sober, self-respecting demeanor, he commences to grow careless, boisterous, obscene of speech, and forgetful. These are but a fraction of the character changes that are the outward, warning expression of a deteriorating organic mental process. It is not only the aged worker suffering from a frankly recognized senility that undergoes these disorders. Only too often they afflict the middle-aged man from forty to fifty. General paresis is no respector of persons. Premature arteriosclorerosis may appear long befor normal senescence is expected; and dementia precox is, of course, a spectre of youth.

The second type of industrial misfit is equally important. In fact, strictly speaking, he has no title whatsoever to the designation "mental" misfit for he is as normal minded as one could wish for. And yet, he often creates a problem. Reference is made to the superior type of workman, superior in ability and intellect, who, nevertheless, is placed in an inferior job and is not promoted. Nothing can be quite so soul-deadening as the situation of the employee with his family, working at a task that consumes only a minor portion of his skill and ability, and who, for a hundred and one economic reasons, may not find a more advantageous location possible. Friction and dissatisfaction as inevitably follow in the wake of this man as they do in that of the inferior worker in the high grade job. Such a situation rapidly tends to destroy the morale of the superior workman; and as surely as the sun rises, he is sooner or later going to express his dissatisfaction in terms of unrest and resentment. Thus is one kind of agitator born, and an especially menacing one, for, being anything but a psychopath or a defective, he diverts his superior intelligence from a job that can use only part of it to stirring up his fellows with the surplus. On the other hand, like all the other types discussed, fit this fellow to a task in keeping with his ability, promote him when he deserves it, and his mischief-making tendencies dissolve into thin air.

These three types, the mental defective, the psychoneurotic, and the psychopath contribute a major share to the problem of the mental misfit in industry. The solution of each is in some ways, an individual matter. Practically speaking, however, the effects of each overlap and cannot be separately untangled.

While attempting no dogmatic solution of these problems, one is disposed to hope that their broader espects may be lightened by an extension of the mental hygiene movement which has already invaded the community, the courts, the schools, and the army. Mental hygiene has assisted in the untangling of many a knotty social and legal problem by explaining the reason for certain conduct or behavior manifestations. In a very practical way it has been of inestimable value to society in demonstrating, for instance, that many a so-called criminal is a mental misfit in the social code, and again, that certain children, who may habitually lie or steal or run away, may need not punishment but to be understood in order to restore them to a plane of future usefulness.

Mental Hygiene Policy

Mental hygiene opposes the old viewpoint of medicine and the law that dealt only with end results and substitutes therefor a policy of prevention of mental disorder, a scientific possibility whose practical success psychiatry has amply demonstrated.

The roots of the problem lie deep in the instinctive life of man—be he soldier, citizen, or workman. That the industrial workman is recruited from the community, and that, ergo, the problems of these two bodies, in the final analysis, should be similar, is so obvious as to scarcely warrant comment. And yet, until industry as a whole studies the individual and his problems, the mental misfit will continue.

DISCUSSION

Dr. A. M. Colcord, plant surgeon, Carnegie Steel Company, Clairton, Pa.: The industrial surgeon must be a psychologist; he must constantly study the mental side of the problems of malingering, strikes, inefficiency, and accidents. A large proportion of the latter are the result of something wrong on the response side or the mental side. The Industrial physician must study how the individual will stand stress such as excessive worry, excessive heat, etc. He must study cases of maladjustment and attempt to eradicate early symptoms of mental impairment. By so doing, the industrial physician will work a benefit not only to his own particular plant but to the person himself.

Dr. J. E. Ambler, Pittsburgh Plate Glass Company, Ford City, Pa.: I have found that an enforced rest of from one to three days following even a trifling injury has beneficial results. This gives the nervous system which has been impaired by the shock a chance to rest and prevents serious accidents which often follow slight injuries.

Pictures Utilized in Department Records

One of the more recent acquisitions of the Department of Labor and Industry in Pennsylvania under the administration of Commissioner Connelley has been a Division of Illustration. For some time it has been felt not only by the commissioner but by the heads of bureaus that a better understanding of their work might be advanced by photographs, photostat copies of charts, and illustrations which would have an educational value.

The Industrial Board has been the latest branch of the department to embrace the services of this division when it adopted a ruling requiring the illustration of safety standards. The recent report of the Employment Bureau made excellent use of this service by showing the various state employment offices in half tone illustrations.

The Bureau of Rehabilitation has a remarkable collection of pictures of cases obtained by the department photographer, for special purposes, either for the education of people or for the enlightenment of departmental personnel when photographs are in order. The supervision of the educational display is left entirely with the Division of Illustration.

"Children of Wage-Earning Mothers—A Study of a Selected Group in Chicago," U. S. Children's Bureau Publication No. 102, covers 843 families of working mothers in which there were 2,066 children under the age of 14 years. It was found that gainful employment of mothers of young children frequently means inadequate care of the children, or no care at all during the day, retarded progress in school, and over fatigue or ill-health of the mother. Measures for reducing the necessity for wage earning by mothers of young children, the report states, includes improved economic conditions that will make the father's earnings more adequate; training of mothers in household management and the care of children; preserving the normal family group.

Physical Rehabilitation in Industry

By OSCAR M. SULLIVAN, Director of Reeducation, Minneapolis, Minn.

THE rehabilitation of a disabled person is an activity that has many phases. This is made manifest by the diverse state systems that were created before the Federal act was passed and began exerting its influence in the direction of standardization. Some of the state systems tended to emphasize the physical side, others the educational side and still others the social welfare side. It is possible to maintain a good theoretical argument that any one of these phases should be the dominant one. However, at the present time the advantage from the pragmatic standpoint is with the system that gives first place to the educational side, for the reason that the Federal law is an educational one and necessarily leads to the development of this field.

But even with the educators in charge of the work, it is not likely that the importance of physical rehabilitation will be or can be slighted. It is obvious that if a disabled person can by proper medical and hospital treatment be physically rehabilitated, this should be done rather than to let the handicap remain and undertake a vocational rehabilitation. It is also evident that until everything has been done to put the disabled person in the best physical condition, any steps for vocational rehabilitation may be premature and unwise. It seems, therefore, that while the new state systems of vocational education and placement for disabled persons are necessarily an educational and social welfare activity they must secure the most complete possible interrelation with the work of physical restoration.

In the opinion of not a few who are engaged in the work, a physical examination of every applicant for vocational rehabilitation is essential, first in order to determine the extent of the handicap, and second, in order to determine whether any physical restoration is possible, and if not, whether the applicant is physically able to perform the duties of the occupation chosen for him. Those who wish to keep the rehabilitation work as free from needless routine and formality as possible do not agree that an examination should be made in every case but admit that it is necessary in a large number of cases.

If physical rehabilitation then is not the direct charge of the state vocation rehabilitation system, whose concern is it? This cannot be answered without making an analysis of the various classes that are covered by rehabilitation. The movement as it is now being conducted in this country cares for some widely divergent groups. The first demand for the work was made on behalf of the persons disabled by injuries within the scope of the workmen's compensation acts. It was soon seen, however, that if it was worth while for the state to establish machinery for reclaiming any group of disabled citizens, it would be sound public policy to use the same machinery for all who were handicapped. As a result the present scope of the system includes victims of all other industrial accidents, of non-industrial accidents and of disease. The great variety of cases must make it very doubtful to anyone whether a single solution of the problem of physical care can be found.

Large Number of Injuries

Let us consider the workmen's compensation cases first. Here one is on firmer ground. Surely, with the progress that has been made by this admirable social insurance plan throughout the country, no one would advocate a new system for physical rehabilitation in the compensation cases. It is true that the care given and the standard fixed by many state laws is very inadequate, but the remedy lies in perfecting the system, not in replacing it with a new one. Every state compensation law should provide full medical, surgical and hospital care necessary to cure and relieve from the effects of the injury. It should include proper prosthesis as a part of such care. It should set up such efficient state supervision of the medical care given under the act that the best results would be attained. If there were a reasonably complete medical report filed on each compensation case and reviewed by a competent medical officer of the administrative body, the benefit from the suggestions alone that could be made as to improved treatment should be very great, to say nothing of such steps as clothing the administrative body with power to step in and order a change in treatment in cases where it seemed necessary.

The statistics that any state can disclose of the large percentage of permanent partial disabilities that are made up of impairments instead of dismemberments would suggest to the layman that here is a place where a big improvement could be made. Illustrating this by the Minnesota statistics which are at hand, I find that out of 1,176 permanent partial compensation cases closed in the year ending June 30, 1920, 613 were cases of loss of function compared with 563 that were dismemberments. The dismemberments include amputation at any time after the injury, and it is possible that even in this group there are some that can be saved by improved methods.

In the absence of effective state control much could be done by voluntary action on the part of the insurance companies. It is not meant to be implied that any of these are not now giving a very high grade of medical care, but it is felt that this is a field where the insurance companies might well be at competition to show which can render the best service. At the San Francisco meeting of the International Association of Industrial Accident Boards and Commissions, a representative of the insurance companies expressed the thought that they should have a place in the rehabilitation movement and that this place should be given them by such changes in the laws as would make it possible for them to reduce compensation if they effected rehabilitation. The writer opposed this view, holding that reduction of compensation in such cases would penalize the injured man and would be a deterrent to rehabilitation. He offered as an alternative the suggestion given above, that the insurance companies had their place in rehabilitation because they have so much to do with the physical restoration of the injured man. Their incentive to do well in this field should be that of service and the time should come when an employer would pick an insurance company because of its reputation for giving the best service in rendering the injured man physically fit.

When one turns to the non-compensable disability cases the difficulty of a uniform plan for the entire group continues. This group can be divided into a large number of classes none of whom have any features in common. One of the important classes is made up of the injured railroad em-

ployees. Adjustment is usually made with these on the basis not of a workman's compensation law, but of a modified liability law. The question of negligence continues and in many cases no financial relief is received. As a rule, railroad companies cooperate in maintaining benefit fund systems for their employees, and medical and hospital care is a feature of such systems. It is clear again that in dealing with these cases the state rehabilitation system can act in an advisory capacity only. Nor is the problem any simpler in the other classes which are covered by the group under consideration. Some of these classes are farm accident cases, traffic accident cases, tuberculous cases, disease cases of various kinds and congenital cases.

While it is possible that a state which would create a system for physical rehabilitation in conjunction with or subsidiary to the vocational rehabilitation system and with the design of serving as a catch-all for such cases for whom no other provision existed, would find that it could accomplish much good, it would also discover that it required very careful management in order to keep it from interfering with the growth of other specialized provisions which have more warrant for existence. There are so many difficulties to be encountered in setting up standards as to where private medicine ends and public medicine begins that it would seem to be the part of caution to approach this aspect of rehabilitation slowly.

On the whole, therefore, it would appear that sound policy dictates an advisory relation to physical rehabilitation upon the part of the vocational rehabilitation system rather than a relation of direct management. It should be the function of the vocational rehabilitation system to understand all the existing provisions for physical care and bring the injured person in touch with the proper agency for treatment or prosthesis at the proper time. In other words it should make itself a center of influence with respect to physical rehabilitation. It should place itself in a position to know what should be done and also as far as possible, bring the right forces into action. Only in exceptional instances will its own direct work be also therapeutic. At times, there will be cases where the disabled person will begin a course of vocational training at some stage of his convalescence and the course will serve at the same time as occupational therapy. In the great majority of cases occurring in civil life, however, the disabled person is likely to postpone his entrance upon a course of training until he is beyond the need of medical treatment and until various factors affecting his future plans, such as compensation, damage, maintenance funds, or the like, are definitely determined.

The relation just outlined for the rehabilitation system will not be found to be a narrow one. It has not been so found in Minnesota. It offers scope for abundant activity, much accomplished, and the gradual development of policies which will eventually fill the gaps in the provisions that now exist.

Adequate Diet is Egyptian Government Study

At the request of the Department of Public Health of the Egyptian Government an investigation has been carried on during the last three years by Dr. W. H. Wilson, professor of physiology at the Cairo Medical School, into the nutritive value of the rations issued to officials and employees in the various administrative departments, the results of which have now been published by the Department.

Fifty-seven groups of individuals are given distinct ration scales of which 38 receive full daily rations. Dr. Wilson takes Prof. E. H. Starling's "ordinary work diet" of protein 100, fat 100, and carbohydrates 500 g., as a standard, though with some doubts as to the protein sufficiency "unless it contains the proportion of animal protein generally present in the diet of well-fed Europeans." This depends entirely on the quality of the protein, which he terms its biological value—that is, the relative proportion absorbed. He instances a convict diet "for light labor," with a gross protein of 110.6 g. and a (protein) biological value of 33.5 as compared with a Waqfs Hospital ordinary diet containing protein 83 g., with a corresponding value of 50.2. In the former, the protein is entirely of vegetable origin, except for 6.3 g. derived from meat; in the latter there are 70 g. meat (without bone) and 200 g. milk, also 60 g. cheese, these three items contributing 35.5 to the total 83 g. gross protein. With regard to fat, Dr. Wilson would "suggest tentatively" that "the minimum for any (adult) diet should not be less than 30, for light work 35, and for moderate or 'hard' labor 45 g. daily."

Stress is laid on the importance of a proper distribution of nutritive value in the various meals, especially in regard to breakfast. In prison diets the breakfast at 5:30 a. m. consisting of bread contains 22 per cent of the total food value. "It is physiologically unsound that adult men should be engaged on heavy labor for six hours on so small a ration, especially as the meal contains no fat." In the school diets for girls, breakfast contains 24 per cent, and in those for boys 27 per cent of the total calorie value; but in those for schoolmistresses and at the school of domestic economy, the breakfast contains only 19.6 and 19 per cent respectively and some improvement is desirable.

Many other points are dealt with in the report which should be of value to all concerned with dietary matters in tropical and subtropical countries; the actual food quantities contained in the dietaries of schools, training colleges, hospital asylums, and prisons, and for soldiers and sailors, are given in detail together with a comprehensive series of chemical analyses of the food articles supplied with an estimate of their dietetic value in a series of over 60 tabular statements.

The Society of American Bacteriologists at a recent meeting in Philadelphia appropriated a fund for a research fellowship in pure bacteriology. The society believes it the duty of bacteriologists to fill the gap in the knowledge of fundamental principles which is chiefly due to the fact that most of the worthwhile work being carried on at the present time deals largely with the practical application of bacteriology. The following committee is in charge of selecting the fellow, supervising the work, approving the problem selected, and passing upon the thesis submitted as the report of the research:—Dr. Victor C. Vaughan, National Research Council, chairman; Captain C. S. Butler, Naval Medical School; Dr. Geo. W. McCay, U. S. P. H. S.; Dr. John R. Mohler, Bureau of Animal Industry; Mr. L. A. Rogers, Bureau of Animal Industry; Col. Jos. F. Seler, Division of Sanitation, U. S. A.; Dr. Erwin F. Smith, Bureau of Plant Pathology.

Women of the New York State Reformatory at Bedford are on the average of a lower grade of mentality than are the men of Sing Sing prison, statistics show. Psychiatric tests of the arrivals at Bedford show an average mental age of ten years; while Sing Sing prisoners show an average mental age of 13 years, 2 months.

Recent Compensation Decisions

By DOROTHY KETCHAM, Director Social Service Department, University Hospital, Ann Arbor, Mich.

THE Supreme Court of Michigan, March 30, 1922, held that death resulted from an "accident" within the Workmen's Compensation Law in the following case. The Industrial Accident Board says in part:

For a period of about eighteen months Otto Klein had been employed in manufacturing automobile parts and batteries. While dipping parts of batteries in sulphuric acid and caustic soda he spilled the solutions on his hands, arms and legs, causing sores on his wrists and legs. He worked in what was known as the vat room where there were fumes from the sulphuric acid, which were injurious to decedent's health and caused him to suffer from a toxic and nervous condition. . . . On January 3, 1920, while putting a radiator in place in a hole on the second floor of the plant . . . he accidently let the radiator slip through the hole, and it fell, striking a man . . . on the head, causing a wound and rendering him unconscious. . . . There is testimony to the effect that the shock was so great that it affected Klein, and that he continued in a highly nervous state and condition from that time on, and that at night he would wake up and cry out that he had killed this man. He continued his work four days after the accident, when he was taken to his bed in a delirious condition, which delirious condition continued and grew worse until the 15th of January, when he died. . . . Under the medical testimony before us, it is established that death resulted from the shock, which the decedent experienced from the accident of accidentally permitting the radiator to fall, hitting his fellow workman and injuring him.

The question before the court is: "Did Mr. Klein come to his death by reason of an accident within the meaning of the Employers' Liability Law?" In the instant case Mr. Klein could not anticipate that, when he removed the register, it would slip from his hand, nor could he anticipate it would hit a fellow employee, rendering him unconscious, nor could he anticipate that he himself would receive a shock which would so affect him in his weakened condition that he would as a result thereof, pass away in less than three weeks. This, however, was just what happened, in the opinion of the attending physician and the other doctors. This was also the conclusion of the Industrial Accident Board. The findings of fact made by the Industrial Accident Board acting within its power are, in the absence of fraud, conclusive. The award was affirmed.—*Klein v. Darling Co., 187 N.W. 400.*

DISABILITY from disease, either caused or accelerated by an occurrence in the cause of employment which is an accident, is compensable under a decision of the Supreme Court of Utah, April 8, 1922. The industrial Commission made an award and the case came before the court upon a writ of review. The findings of fact are stated briefly. On January 17, 1921, Clarence Snyder, a carpenter in the employ of the Tintic Milling Company, was ordered with another employee to remove or change a bulkhead in a flue that carried the fumes from the roaster.

When they first attempted to enter the flue, the fumes were so strong they could not go in, and had to wait about half an hour. Then they went in and removed the bulkhead, whereupon the applicant became sick . . . He continued to work, however, for a period of three days, during which time he continued also to cough, and kept getting worse. . . . With the exception of the first three days thereafter, he was never able to work at his regular employment.

Expert medical opinion was to the effect that before January 17, 1921 the applicant was afflicted with pulmonary tuberculosis, and that the alleged accident of January 21 had little or nothing to do with the injury of which he complained. He admitted that the occurrence might have aggravated or accelerated the disease, but it was by no means the starting point.

The Court is of the opinion that there is ample evidence in the record to sustain the findings of the Commission that the injury was either caused by the occurrence of January 17, or that said occurence lighted up a dormant condition which previously existed as found by the Commission.

What is termed an accident must be something out of the ordinary, unexpected, and definitely located as to time and place. If an injury is incurred gradually in the course of employment, and because thereof, and there is no specific event known as the starting point, it is held to be an occupational disease, and not an injury resulting from accident. . . . Being convinced . . that Clarence Snyder, the employee in this case, on the 17th day of January, 1921, at a definite time and place, while in the course of his employment, received an injury by inhaling gas, wholly unexpected by him, and that such injury aggravated and accelerated a pre-existing disease and rendered him wholly unable thereafter to continue his usual employment, I am of the opinion that the findings, conclusions and award of the defendant commission should be affirmed, with interest on payments past due, at plaintiff's costs.—*Tintic Milling Co. v. Industrial Commission of Utah, 206 Pac. 278.*

THE pleadings were faulty and the following case was set aside for new trial by the Court of Appeals of Kentucky, May 19, 1922. The only point to be particularly noted is that where a petition alleged that a coal company negligently failed to construct proper air courses or to provide its mine with means of ventilation required by law and permitted poisonous gases at a place of employment of the plaintiff, by which his lungs and system became contaminated, and he became weak and ill, and was compelled to discontinue work for fourteen days, was good in the absence of a demurrer or motion to make it more specific, insofar as it sought recovery for the time alleged to have been lost.—*Kentucky Elkhorn Coal Corporation v. Bingdon, 241 S.W. 60.*

AN employee of a shipbuilding and repairing company, while engaged in the discharge of the duties of his employment, received an injury and died. Shortly after the death, the widow entered a claim for compensation which was denied after a hearing by the Industrial Accident Board of Texas. Mrs. Schrieber alleged, substantially that her husband, while engaged in the performance of his duties as an employee, fell from a scaffold which was constructed alongside of one of the boats on which he was working into the shallow water under the boat, and in such fall sustained injuries which caused his death. The insurance company carrying the policy of insurance under the Workmen's Compensation Act filed a general demurrer and general denial, stating that death was caused by cerebro-spinal syphilis, and upon such ground denied liability under the policy.

The case was tried and an award was made, a motion for new trial being overruled, an appeal was taken to the Court of Civil Appeals of Texas, November 14, 1921, April 17, 1922. A rehearing was denied May 3, 1922. The trial court's judgment was referred in some particulars and affirmed.—*Millers Indemnity Underwriters v. Schrieber, 240 S.W. 963.*

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Air-Conditioning, Longevity, and Health

Temperature and Humidity Regulation Is Health Factor in Home, School and Factory

By W. DWIGHT PIERCE, Ph.D., San Mateo, Cal.

THE average educated person asked to tell through what agencies death and sickness dealing organisms may reach the human body might correctly include as the principal agencies air, food and drink, exposure and accidents.

The bearing of the whole subject of air conditioning upon life and accident insurance is enormous, and doubtless industries which base their working conditions upon scientific principles will find after the trial periods are past that from all insurance viewpoints their employees are better insurance risks than they had been before.

The science of air-conditioning has had its rise through several distinct agencies. Through the sanitarian we have learned the importance of fresh air and ventilation in shop, factory, and home, and something about its regulation. Through the medical profession we have learned the importance of climate and fresh air in the cure of certain diseases. Through the manufacturers we have learned that their products are better and their machinery works better at certain times of the year than at other times. The engineering profession has met this industrial problem by solving the problems of thermostatic and hydrostatic control of factory conditions. The biologist, working on his insect problems, has learned the relationship of temperature and humidity to insect development and activity, and has applied the principles thus derived to other types of life and finally to man. The results of combining these findings of independent branches of research into a real science of air conditioning are incalculable.

One of the sanitary requirements set down for public buildings and factories was a maximum limit of carbon dioxid in the air. Unfortunately we have been slow in learning significance of the physical characteristics of the air, and the sanitarian still has a definite problem before him as regards this specification. For it is now known that the volume of carbon dioxid which can be held by the air without prejudice to the human system is dependent upon temperature and relative humidity, and this latter in turn is dependent upon atmospheric pressure. Thus it appears that new studies must be made to correlate the gas constituents of the air with the physical characteristics of the air.

While these fundamental laws of permissible gas are being worked out we are not without means of profiting by the general principles involved. We know that too much carbon dioxid is not good. We know that the human being needs oxygen. While the experts are determining the safety margins beyond which none should transgress, let us look to obtaining a sufficient amount of fresh air through ventilation so that we shall always be safely within the limits. There are many systems of ventilation, more or less effective, and experienced engineers are constantly improving the types of ventilation. The sanitarians have time and again furnished detailed examples of definite gains in human efficiency brought about by satisfactory ventilation. The medical profession has established beyond a doubt the therapeutic values of fresh air in hospital and home.

The first law of air-conditioning may be stated as follows: For every living creature, plant and animal, there is a condition of the air as regards its gaseous composition of oxygen, carbon dioxid, and other gases, all other things being equal, at which the particular species of plant or animal thrives best, and as the composition of gases departs from the optimum condition the welfare of the species diminishes until a point is reached in which life is impossible. This law must be applied separately for each species and race, for divergence from type as regards gas resistance is one of the factors in the creation of races and species.

The science of air-conditioning, however, only begins with the thought of fresh air. The reason for ventilation is chemical and physiological. We must supply the lungs with plenty of oxygen to purify the blood; we must remove the waste products which are thrown off from the lungs.

There is reason to believe that there are certain physical conditions of the air under which human efficiency is greatest when the constituents of the air are proper. The air has several physical characteristics which are of utmost importance in this study.

The first of these is [illegible] pressure or the weight of the column of air above us. These were [illegible] keep up in [illegible] how the lightness of the atmospheric pressure weakened them. They [illegible]

unable to obtain sufficient oxygen in the rarified atmosphere; the heart fluttered; they quickly wearied. As they went down they became more and more invigorated. But in like manner those who have descended into mines have felt the increased pressure until to go farther was to endanger life.

The second law of air-conditioning provides that for every living creature, plant and animal, there is a weight of atmospheric pressure, all other things being equal, at which the particular species of plant or animal thrives best, and as the atmospheric pressure departs from the optimum the welfare of the species diminishes until a point is reached in which life is impossible. This law must be applied separately for each species or race, for divergence from type as regards atmospheric pressure is one of the factors in the creation of races and species. This law is fully illustrated in the Life Zones on a high mountain.

The third law of air-conditions states that for every living creature, plant and animal, there are a quantity and quality of light, all other things being equal, at which the particular species of plant or animal thrives best, and as the quantity or quality of light departs from the optimum the welfare of the species diminishes until a point is reached in which life is impossible.

The third physical characteristic of the atmosphere has to do with those low vibrations in the atmosphere known as heat waves, in other words, temperature. It is the custom to speak of air conditions in terms of temperature and to describe sensation in terms of warmth and coolness. "This has been correct in a sense because sensations are due to certain attributes of the temperature. Nevertheless there are many people who cannot understand why they are likely to collapse when the thermometer stands at 90 degrees in New York and can play tennis at 110 degrees in Dallas or Phoenix. They do not see why they should feel exhilarated in Denver at 32 degrees and be chilled to the marrow in San Francisco at 40 degrees. This is because they have ignored the fourth factor, humidity. Temperature was the first atmospheric factor which received much attention in the study of air effects on activity, and all early biological work was done in an effort to determine the laws of effective temperature. This work failed because the law of the optimum, and diminished efficiency with variations from the optimum in both directions, was not understood until in 1916 the zones of temperature were defined.

The fourth law of air conditions is similar to the others: For every living creature, plant and animal, there is a degree or zone of degrees of temperature, all other factors being equal, at which the particular species of plant or animal thrives best, and as the temperature departs from the optimum the welfare and activity of the species diminishes until a point is reached in which life is impossible.

The Humidity Factor

The factor of humidity is just as vital to life as temperature, although it has been greatly neglected or misunderstood in past studies. Relative humidity is the percentage of saturation of the atmosphere with water vapor. The quantity by weight of water vapor which can be absorbed by the air depends upon the atmospheric pressure, the temperature, and the gaseous content of the air. Many investigators have studied humidity from the standpoint of the weight of the column of atmospheric moisture, or by the dewpoint, or the temperature of the wet bulb thermometer, but none of these mathematical units gives us the opportunity to make a good comparative study of reactions, such as is possible with relative humidity. Using this quality of the air the fifth law may be framed: For every living creature, plant and animal, there is a percentage or zone of percentages of relative humidity, all other factors being equal, at which the particular species of plant or animal thrives best, and as the relative humidity departs from this optimum the welfare and activity of the species diminishes until a point is reached in which life is impossible.

It is apparent from the foregoing that when we speak of proper air-conditioning, even for human beings, we cannot speak exclusively in terms of ventilation, of temperature, of humidity, or of light, but that what we are seeking is a condition in which all of these factors and the uncontrollable factor of pressure are concerned. The problem then deals with a combination of factors on different planes, as it were, all reacting in the same general sort of way and we can very well conceive of the air conditions as a sphere cut in different directions by the planes of the factors which affect life, the heart of which sphere is located in those zones of light, heat, moisture, pressure, and gas which are most favorable to development, activity, and efficiency, and surrounding which are concentric layers of condition less and less favorable to the welfare of the species, until on the outside of the sphere are found the conditions absolutely inimical to its life.

The sixth law is that for every living creature, plant or animal, there is a combination of quantity and quality of light, atmospheric pressure, quantity and quality of constituent gases, temperature, and percentage of relative humidity, at which the particular species of plant or animal thrives best, and as any of these factors depart from this optimum the welfare and activity of the species diminishes until a point is reached in which life is impossible.

The biologist knows that the higher plant and animal species are merely assemblages of living cells grouped into organs and systems of organs and that therefore what affects the body as a whole affects its constituent parts, and what affects the constituent cells affects the whole body. We then proceed to our seventh law which is very important in the question of treatment of disease. For every living creature, plant or animal, and for every cell and organ and part of such creature, at no matter what stage of development, there is a combination of the atmospheric factors of gases, light, heat, pressure and moisture at which the life functions of metabolism, assimilation, transpiration, growth, reproduction, etc. are at their greatest efficiency. This combination or zone of conditions is called the *Practicotatum*. By greatest efficiency we do not necessarily mean capability to do the greatest amount of work, but rather the capability to do the greatest amount of accurate, dependable work, with the least exhaustion, wear and tear.

Before coming to a discussion of the bearings of all these laws on human life and happiness and the prosperity of those who apply them, we must bring out one more law which is of utmost importance to all business men and especially to manufacturers. In the textile industry, the rubber industry, bread making, candy making, macaroni manufacture, ceramic industry, and in the making of many kinds of machinery, it has already been proven beyond contradiction that regulation and uniformity of temperature and humidity are necessary for perfect production. Behind all this is the fact that the chemical world also reacts to all

these air factors in a similar manner. The eighth law may be stated as follows: All forms of life, plant and animal, microörganisms and complex organisms, and all kinds of machinery, metals, and chemicals and all products of manufacture are affected in the same general manner by the factors of the atmosphere, gases, light, pressure, temperature, and humidity, in that in each case there is a combination of these factors at which they are at their best, and divergence from which results in reduction of efficiency or quality or some other desirable characteristic.

Inasmuch as every function of the human body and every portion of the body is governed more or less in its reactions by the conditions in the air about us, it is directly incumbent upon us to see that we have opportunity to live and work under such conditions that our health may be best, our lives longest, and our work most productive. It is also both our duty and our interest to see that conditions are such that those who work for us shall also have like opportunity. Furthermore, it is a function of the state to see that no person shall be forced to work under conditions inimical to health and by regulation, also to secure for the worker the best possible working conditions.

The same principles are acting upon our well being at home, at church, in the theater, in the trains, as in office and factory. Many a laborer works eight hours under fairly hygienic conditions and then at home incloses himself in an atmosphere that undermines. Many another laborer lives at home in a fairly hygienic manner and during his shift is subjected to air conditions which quickly take away his vitality. We are concerned here with laws that operate twenty-four hours of every day in the year throughout our lives.

A few of the important features of air effects on man will be brought out in order that we may grasp the significance of the whole question and see the direction in which practical application must be made. We are far from knowing all the facts as regards man—in fact we are just beginning to learn them. Therefore, such figures as shall be given regarding zones of reactions are more or less approximate only.

The average human practicotatum or comfort zone (if we count only temperature and humidity and consider all other factors as equal) may be charted as an ellipse with the axes diagonal, and bounded by 32 per cent and 55 per cent relative humidity, and 55 degrees and 70 degrees F. mean temperature, with the center at 63 degrees F. and 43.5 per cent humidity. These conditions are ideal at the average atmospheric pressure of 30 or 31 inches, when the air is fresh and the light satisfactory. If we could maintain our living and working conditions within this zone we would accomplish the greatest amount of effort.

Surrounding the zone of comfort is a larger zone of temperature and humidity in which we are still able to do effective work and the most favorable conditions are those nearest the center. This zone extends for the average man from 36 degrees to 90 degrees F. temperature and from 2 per cent to 85 per cent relative humidity. It is elliptical in form, so that 90 degrees F. and 85 degrees humidity would be far outside the zone. We shall illustrate this in a moment. Man is quite an adjustable creature and can work under many different conditions, even outside this zone. But in general within its limits he works without excessive exhaustion and without great increase in bodily temperature. His comfort is more or less governed by the nature and weight of his clothing, his previous adjustment to the given working conditions, the nature of his food, and the amount of the physical energy required. The person sitting all day needs a higher temperature at a given humidity than one exercising. We may call this the zone of practical working conditions, and broadly speaking no man should be expected to work, except for very short periods under hygienic factory conditions, at humid-temperatures outside this zone. An easy way of determining whether one is outside the zone as regards humidity is by reading the wet bulb thermometer, which should not be higher than 70 degrees F. at 30 inches pressure. The wet bulb thermometer is one of a pair of equal thermometers, one of which has the bulb covered with a cloth cap and wet. These are whirled until there is no change in the readings and then the wet and dry bulb readings are read from which humidity can be figured.

We should keep our home temperatures and humidity between 63 degrees and 68 degrees F. and the humidity between 40 per cent and 43 per cent, but never below 32 per cent nor above 55 per cent at these temperatures. If 70 degrees F. is desirable, then the humidity should be 37 per cent to 40 per cent. In the heating of houses the temperature is too apt to go above 70 degrees and the moisture is often entirely exhausted and the air stale with carbon dioxid. With a dry heat of any kind, unless the ventilating air is very moist, some means must be used to restore moisture to the air. This is often done by heating a broad topped vessel of water or a tea-kettle.

Hospitals will no doubt apply these principles to the treatment of their patients, keeping them under the condition most favorable to the curative processes and least favorable to the multiplication of the disease organisms. Office managers will seek to establish the point at which the mental activity of their clerks is most alert and accurate and will maintain this condition throughout the year. Managers of theaters and assembly halls, trustees of churches, will desire to know the conditions under which their patrons are most keenly appreciative of the entertainment or services rendered. Factory managers will seek to reconcile these zones of factors so that they may obtain the best quality of product obtainable, with the greatest efficiency of production by the machinery, under the most suitable conditions for human efficiency.

It is very important while still discussing the zones of working conditions, to point out that man is a variable species, of many races, and that the different races of men have become so long inured to certain ranges of temperature that the bodily metabolism has adjusted itself thereto, and consequently when we bring together men of different races, or of a different climatic upbringing, we can not expect them to react alike to the conditions we fix until their metabolic functions have accomplished the change which we call acclimation. We can use this fact to advantage by assigning men able to stand high temperatures to the tasks which necessitate conditions unsuitable for the average person, and in like manner we can sort out the workers for the cold, the wet, the dry tasks.

Surrounding the zone of practical working conditions are more or less concentric zones and subzones of reactions such as those of debilitation and discomfort, sluggishness, pain and intense suffering. Work can be done under such conditions but is accompanied by some of the following sensations: chill, benumbing, thirst, parched sensation, excessive perspiration, stifling, depressing fatigue, fre-

quent need of rest, quickened or sluggish pulse, fever. These conditions should be avoided in any place of work if possible, for the workman subjected to them is not only in danger of his health breaking down, but his efficiency is greatly reduced and his mistakes, errors and breakages are greatly increased. It pays to take account of the comfort of employees because when they are uncomfortable profits are reduced and losses are increased. Under no conditions should hospital patients be kept under any of these conditions.

Surrounding these subzones of discomfort and pain is the zone of sleep which merges into the outer zone of death.

As examples of the fact that the axis of our figures is diagonal we may take the line of 80 degrees F. At 80 degrees and 20 per cent humidity one experiences no discomfort in work; at 65 per cent humidity discomfort is felt; at 80 per cent rest is necessary; at 100 per cent hard work is impossible. Even at 70 degrees one may work without discomfort from 2 per cent to 75 per cent humidity, and with greatest comfort at 40 per cent humidity; at 85 per cent there is comfort only when quiet; and at 91 per cent depressing fatigue is experienced. But at 90 degrees temperature the only humidity at which one is likely to experience no discomfort is about 25 per cent, while at 50 per cent it is considered in the textile industry that operatives should not be required to work; at 65 per cent hard work is impossible; at 81 per cent the body temperature rises when one is at rest; and 90 per cent is dangerous to the health; while at 100 per cent fever and death may occur. Fatalities from heat at 5 per cent humidity occur above 115 degrees; at 20 per cent above 119 degrees; but at 100 per cent may occur at 89 degrees.

Air conditioning was first brought about by the demand for better quality of products and less injury to the product in the textile industry, and later utilized in many industries. The engineering profession has solved the problems of automatic regulation and control of temperature and humidity, so that by thermostat and hydrostat a fixed combination of conditions can be maintained indoors, no matter what the conditions outdoors. A complete installation involves equipment for ventilation or air washing, humidifying, dehumidifying, heating and cooling, and of course our last requirement is proper lighting. All of these things can be accomplished by the engineering profession at costs which make them feasible in most factories.

The principal point is that after the installation of an adjustable system capable of regulation to a very small margin of variation, the conditions under which the system must be operated in a given plant have yet to be determined. The determination of the conditions necessary in each department is one for the efficiency engineer, who will study the biological requirements as well as the requirements of the equipment and product. Each department may ultimately be operated under entirely different air conditions. The application of these principles in business, in the home, the auditorium, the hospital, will result in greater health and happiness, greatly reduced incidence of colds, fevers, and lung diseases, more efficient hospital treatment of disease, and naturally greater longevity to those benefitted by living and working under proper air conditions.

Some Problems in Unscientific Living

RUSSIA has seized and expelled from her borders for varying periods fifteen hundred intellectuals and scientists as non-essential if not undesirable citizens. The situation offers interesting vistas for speculation.

As a remedy for the many evils of present modes of existence the expedient of returning to the simple life is often suggested. The expulsion of scientists offers a quick and sure way of accomplishing this. If, for instance, as may easily be conceived, the body of expelled experts included bacteriologists, scientific methods in the handling of communicable disease would at once reduce preventive medicine to the clumsy expedient of absolute isolation of every one affected with contagious forms of disease. Utensils, clothing, and other means of contact might under such a regime be sterilized by boiling, but without the voice of science this would scarcely be considered necessary. There would naturally result a much higher death rate from a wide range of disorders, which would be all to the good if microbes had the habit of taking off the undesirables only; but, as contagion falls impartially upon the genius and the dullard, survival under such conditions would be to the lucky and not necessarily to the fit.

Not only in the practice of medicine would commonplace, untrained direction of affairs cause a slump in standards. Without our engineers all the commoner comforts of life would be subject to change. Community water supplies would give way to the common well or the contaminated stream. Urban communities would of necessity be dispersed as the scientific solution of collective problems became impossible. Electricity, harnessed and made to serve practical purposes only by experts, would yield to sources of power utterly unsuited to our present requirements. Communication would fall off and those arts which are perfected through interchange of ideas and through cooperative effort would fall into disuse. Even the reactionaries who bemoan our transition from the day when the craftsman was identified with his own individual product would face with fear the change of economic regime to the drudgery and abuses of old systems of apprenticeship and to the home workshop where there was little need for the worker to produce more than would meet his own individual needs, and when the standard of his work was not higher than the immediate copy he followed. Far more than is generally appreciated our standards of living are the outgrowth of specialized services of one kind and another, and it is scientific imagination which affords the ideals that spur men on to creative effort.

For the common people life would be miserable indeed. Our homes would be unlighted, unventilated, unplumbed; habits would need to be altered on the basis of primitive sanitation—if in fact sanitation is possible at all to primitive thinking. Let us promote, therefore, every agency for making the scientific solution of our daily problems a common objective and a daily habit. Especially is it necessary to get together on community health problems. Each community should consider its own specific health problems during Health Week, set for October 23 to 30, which is an opportune get together health effort on the part of both professional and lay workers.

Scoliosis Prevention During School Period

Examination of School Children Will Do Much to Offset Deformity

By ARCHER O'REILLY, M.D., F.A.C.S., St. Louis, Mo.

SCOLIOSIS is one of the most interesting problems in orthopedic surgery because it is unsolved. Almost every orthopedic surgeon has devised some method of treatment or has contributed some thoughts on its cause or mechanics, but as yet, no cure has been devised. The deformities in structural scoliosis tend to increase and, unless prevented, may become very marked and unsightly. As correction has not been successful, prevention is most important. It is this latter phase that I wish to emphasize particularly in this paper.

Scoliosis is a common deformity. Whitman says that it comes next in frequency to bow legs, and Bradford and Lovett state that it is found in between twenty and thirty per cent of school children. It will be seen from this that scoliosis is an important deformity and one that should be taken much more seriously than it seems to be at present, especially when one considers the amount of the deformity and the difficulty of correction.

There are two types of scoliosis: (1) the postural or total curve, a long sweeping curve from the neck to the sacrum, usually the result of weak musculature or faulty posture; in this type there are no bony changes; (2) the structural curve, composed of two or more curves, in which definite bony alterations have taken place.

The simple postural curve is less serious and can be fairly easily corrected by gymnastics, by postural exercises, and by the use of a light support such as a brace, a leather or celluloid jacket. The postural curve is of importance, however, and in no case should it be neglected because it may very readily develop into the structural curve. The structural curve is difficult to treat, and once it has developed its correction is almost impossible. For that reason it is most important that it should be prevented or its development be arrested at the earliest possible moment.

In order to emphasize the importance of structural scoliosis some of the changes that take place will be reviewed briefly. The structural curve is always compound. As the spinal curve develops, changes take place in the vertebrae, especially in the bodies. These become distorted and wedge-shaped, compressed on the concave side and expanded on the convex side. Coincident with the development of the curve, the bodies of the vertebrae rotate from the mid-line toward the convexity of the curve. Rotation is always present in structural scoliosis. There are many theories and explanations offered to account for rotation. Three of the more prominent ones are: (a) If an elastic rod curved, say, antero-posteriorally, is bent laterally, it twists on itself. The spine is a rod of this type and acts similarly. (Lovett.) (b) The ribs on the convex side are expanded, stretching the muscles, which cause an elastic pressure that is transmitted posteriorally to the rib attachment, so causing the vertebral bodies to rotate in the opposite direction. (Feiss.) (c) The body weight acting through a laterally curved spine may be split into two components, one tending to displace further the vertebræ to the convexity of the curve. The brunt of the body weight is borne by the column of the bodies which are therefor displaced more than the unweighted and muscularly held arches and processes. The net result—that the bodies tend to displace while relatively the arches do not, is that convex rotation is set up. (Tubby.) This later theory seems to be the more plausible, especially when one considers that compression takes place on the concave side and expansion on the convex side, rendering rotation on that side more easy.

Rotation is a serious and marked deformity. The ribs are carried backward, the angle becomes sharp, resulting in a most unsightly prominence. The thorax is flattened on the side of the curve. The treatment is directed at the correction of the curve and the reduction of the rotation. It is this latter phase of the deformity that is so difficult to correct and that renders treatment so unavailing. The great number and variety of methods suggested are proof of our failure to devise, as yet, a satisfactory method of treatment.

The best method of treatment, I believe, is by the plaster of Paris jacket. The spine is corrected as much as possible and a jacket applied to hold it in that position. In about six to eight weeks the jacket is removed, the spine is further corrected, and another jacket is applied. This is repeated until no further correction can be obtained. When the spine is as nearly corrected as possible, a removable jacket may be worn and gymnastic exercises given to strengthen the back. I do not believe that, in the majority of cases, braces are of any value in the treatment of scoliosis. They can easily get out of adjustment and the patient must be under constant observation, and unless the brace is constantly exerting a corrective pressure, it is worse than useless. Some orthopedic surgeons claim to have obtained good results with braces, but they are the exception.

Prevention, then, is most important, and every effort should be made to detect scoliosis in its earliest stage, and by proper treatment cure the deformity or at least prevent its further development. In order to accomplish this end children's backs should be frequently inspected. From an experience in an orthopedic clinic where many cases of scoliosis are seen each year this does not seem to be the case. The usual history given, is that the parents have suddenly noticed a lump on the patient's back, or that while bathing the child, they noticed the scoliosis. In most of these cases the deformity, when brought to the clinic is quite markedly developed, with well pronounced rotation. Another history frequently given is that when the patient was being fitted with a dress the dressmaker noticed that one hip was larger or that one shoulder was lower than the other. All of this shows a lamentable lack of observation on the part of the parents and an ignorance of the seriousness of the condition. But it is ridiculous to expect the average parent to be able to detect the early stage of scoliosis, especially when the curve is slight and practically no deformity present. In older children who are able to care for themselves the parents very rarely have an opportunity to examine the back, so that it is quite easy for a deformity

to reach marked proportions before it is noticed.

What, then, should be done to prevent the development of scoliosis? In the author's opinion this is a question which should be handled by the schools. In many communities there are organizations of the parents that have meetings at more or less regular intervals, and at which there are frequently lectures on various topics. At these meetings some time might be devoted to lectures on hygiene and health, and especially on the development of deformities and their prevention. Scoliosis would naturally be one of the topics discussed. The parents should be educated to demand a thorough physical examination of their children by the school physician, and if there is no school physician, then they should demand that one be employed. This seems to the author very important, because in some places the parents object to a thorough physical examination and will not allow the children to be undressed, so that a thorough physical examination is impossible and the only defects discovered are those which are perfectly obvious, and those of the eyes and throat. Because of this ignorance and prejudice many children become hopeless cripples because they are not properly examined and developing deformities are not recognized early enough to be prevented.

All schools should have a regular school physician, who, in addition to looking after the general health of the children, should give them a thorough physical examination at least once, and preferably twice a year. This might take place at the beginning and at the middle of the school year. The children should be completely stripped and they should be examined for physical defects and deformities. The child's posture should be noted and also any bad habits in standing and walking. Especial care should be given to the spine to note the presence of beginning postural or structural scoliosis. When any of these defects are present, the parents should be instructed to have them treated immediately and the danger of delay should be impressed upon them. If this routine were carried out many children would be saved from a future of deformity.

In conclusion, I wish strongly to emphasize the fact that scoliosis, even in the postural stage, is a serious condition; postural cases frequently become structural. In the advanced stage, treatment at best, is unsatisfactory and to be of value should be commenced at the very earliest moment. Patients do not outgrow structural scoliosis; in fact, the deformity tends to increase. The very best treatment for lateral curvature is prevention. To insure this, children's backs should be examined frequently. This can best be accomplished by examining all school children at least twice a year. Then if there are any signs of lateral deviation, postural or structural, treatment should be begun at once.

Mental Hygiene and the Child*

By C. MACFIE CAMPBELL, M.D., Director, Psychopathic Hospital, Boston, Mass.

MENTAL health means healthy reactions to the demands of the environment, or healthy behavior. The mechanism of behavior is very complicated and its roots go deep into the biological constitution of the individual. Behavior may be interfered with by gross disorders of the most fundamental mechanisms; it may be interfered with by much more subtle causes. In face of some problem in the behavior of the individual one has to review systematically all the mechanisms involved. The problem may be a child with chorea or bed-wetting or stammering or tantrums or morbid fears or undue dependence upon mother or pilfering or florid formation of phantasies. No matter what the nature of the reaction, the underlying mechanisms have to be reviewed. A simple symptom may have a very complex origin. On the other hand, a very complicated type of behavior may result from some simple disorder.

The physician in examining the patient lays particular emphasis on two systems: (1) on the central nervous system, and (2) on the glands of internal secretion. He also studies the general health of the individual to see whether the reacting mechanisms may be influenced by some general infection, e.g., rheumatism, or disorder of nutrition (rickets, malnutrition), or some other physical disorder. He considers also the effect on behavior of physiological conditions, such as fatigue, and pays attention to the balance of work and recreation, the extent of sleep.

As to the central nervous system, the physician examines to see whether there is any structural disorder, such as residual from infant hemiplegia, or any less gross anomaly, with perhaps a history of epileptiform attacks. He will have to weigh the role played by any anomaly in relation to the problem for which the child is brought in, that is, he will have to consider how far the inadequacy of the child's behavior may be related to some endocrine disorder, such as a disorder of the pituitary gland.

Extraordinary changes in conduct may follow on infective disorders, such as lethargic encephalitis. The organic basis for these may be overlooked and the child treated as if deliberately willful.

The physician will review the functional balance of the child as indicated by its developmental history and its reactions to the ordinary tests of life. He will note any emotional idiosyncrasy and any special type of reaction. Children vary in their type of sleep; they vary in reaction to food. The special emotional type of the child must be considered. Behavior is not to be immediately considered willful and wayward because it deviates somewhat from the average; it may be the expression of the child's constitution, and the problem is what are the most favorable conditions for the development of the child?

Finally, the physician studies the way in which early experiences modify a child's reactions, give a special emotional value to special topics, develop special fears and likes and doubts. The physician will study the dynamic equilibrium of the various instinctive forces, and see how far the behavior of the child is to be attributed to conflicts in this sphere, and whether the conflict cannot be modified somewhat. The physician with this point of view will become very much more helpful when called to advise the parent about many of the puzzling ailments of children; he will instruct the parents that all disorders of childhood are not necessarily due to infection or to improper diet but like stomach ache, they are to be studied before treated.

*Read before the Forty-ninth Annual Meeting of the National Conference of Social Work, Providence, R. I., June 22-29, 1922.

Economic Standards in Nutrition*

By LUCY H. GILLETT, Superintendent, Nutrition Bureau Association for Improving the Condition of the Poor, New York City.

EVERY organization as well as every individual dealing with the welfare of children should, for its most effective work, understand the economic problems involved in the family from which the children come.

The food expenditure is of vital importance, for the health of the family, and especially its nutrition, is very closely related to its food supply. If the money spent for food, or the money the family can afford to spend for food, is inadequate, the children are in danger of malnutrition, tuberculosis, and other diseases throughout childhood and perhaps they may be handicapped for life. Unless such conditions are discovered and remedied, the best nutrition program will involve much wasted energy.

In many families the income would be adequate with reasonable economy. With a better understanding of the economic factor, especially a minimum standard for safety, suggestions would be far more effective. Any individual family on a limited income needs to spend to good advantage to get all the nourishment needed by growing boys and girls. In any welfare work it is quite important to know what a minimum food allowance is. Where money is donated to any organization for distribution to provide food for families needing assistance, that organization wants to make the best possible use of the funds entrusted to it by making those funds help as many families as possible. An allowance of even one cent more per person per meal than is necessary, will increase the budget of an organization by at least ten thousand dollars for every 150 families helped.

How can we be sure that the allowance is adequate, yet a minimum, below which any family may be in danger?

The New York Nutrition Council, feeling the need for some control of this oft neglected factor, appointed a committee to standardize the method for determining what the minimum adequate food allowance is in terms of dollars and cents, and to reduce to its simplest terms the important facts in nutrition that every family and every social worker should know. There is danger of malnutrition even when there is enough money spent for food. The food must be of the right kind as well as sufficient in quantity. Scientists have shown the very close relationship between certain types of food and health. These results show the need of certain types and a minimum of others. A diet chosen at random or in accordance with one's appetite may or may not be satisfactory.

This Committee has outlined in simple form suggestions for economical diets which will provide adequate nourishment for children under two years of age, from 2 to 5 years, from 5 to 12, from 12 to 16, and for the adult. Weekly diets were planned to provide the proper amount of protein, fats, mineral elements, vitamines, and calories from the most economical sources so far as our knowledge allows us to suggest. All the diets presented are approved by Dr. Mary S. Rose of Teachers College. These diets are as follows:

Weekly Diet for Children Under Two

The allowance is from 900 to 1,200 calories. Food quantity and calories apply to all nationalities. The costs should be revised according to location and season and to allow the use of higher priced foods used by some nationalities, for example, sweet butter for salt in the Jewish diets.

Food	Quantity	Calories	Cost in New York March, 1922 Revise to meet individual needs
Milk	7 qts.	4,725	$1.05
Eggs	3–4	240	.12
Butter	2 oz.	435	.053
Fruit	12 oz.	350	.10
Vegetables	1 lb.	140	.09
Bread (1½ slices a day)	1 lb.	1,200	.08
Cereal (dry)	8 oz.	800	.06
		7,890	$1.75

1,127 Calories daily $0.19 per 1,000 Calories

The following allowances for milk were made: For children under 2 years, 1 quart a day, for children from 2-5 years of age, ¾ of a quart a day. A quart is allowed for children from 12-16 years old because this is a period of very rapid growth. It was decided to allow bottled milk for all children under 5 years of age and for drinking for older children. Loose milk is recommended for cooking when the financial situation is such that bottled milk cannot be provided. Loose milk should in all cases be heated before being used.

Weekly Diet for Children 2 to 5 Years

The allowance is from 1,000 to 1,500 calories:

Food	Quantity	Calories	Cost— Revise to meet individual needs
Milk	3½–5 qts	3,375–2,362	$0.75–$0.53
Eggs	3–4	240– 240	.12 .12
Butter	2–3½ oz	436– 764	.053– .093
Fruit (fresh or dried, some every day)	2–3 oranges or 2–3 apples plus 2–3 oz. dried fruit	350– 700	.024– .036
Vegetables:			
Green or root	1–2 lbs.	140– 280	.09 – .18
Potatoes	2–2½ lbs.	600– 760	.08 – .10
Bread	1–2 lbs.	1,200–2,400	.08 – .16
Cereal	7–14 oz.	700–1,400	.042– .063
Legumes	1–2 oz.	100– 200	.007– .014
Sugar	0–6 oz.	0– 680	0– .08
		7,141–7,906	$1.26–$1.134

1,021–1,358 calories daily $0.171–$0.18 per 1,000 calories

Weekly Diet for Children 5 to 12 Years

The allowance is from 1,800 to 2,400 calories

Food—	Quantity	Calories	Cost Revised to meet individual needs
Milk*	3½–5 qts	2,362–3,363	$0.75–$1.05
Eggs†	3–4	225– 300	.09 – .12
Meat or Fish	0–1 lb	0– 600	.185
Fat‡	3½–5 oz.	764–3,600	.093– .13
Fruit	2–3 oranges or 2–3 apples plus 1–5 oz. dried fruit	500– 770	.06 – .12
Vegetables:			
Green or root	2–4 lbs.	200– 650	.08 – .16
Potatoes	2–3 lbs.	608– 912	.08 – .12
Legumes and cheese	2–4 oz.	200– 600	.021– .063
Bread	2–4 lbs.	2,400–4,800	.16 – .32
Cereal	12–20 oz.	1,050–1,750	.06 – .09
Sugar	6–8 oz.	680– 907	.019– .025
		9,110–17,355	$1.66–$3.04

1,300–2,402 calories daily $0.24–$0.127 per 1,000 calories

*Presented before the New York Nutrition Council, May 18, 1922. Photographs are of the Judson Health Center, New York City.

*Increase milk to 7 quarts when can be afforded.
†Eggs may be omitted when too expensive.
‡Fat may be reduced from 1 lb. to ½ or ¾ lb.

Weekly Diet for Children 12 to 16 Years

The allowance is from 1,900 to 3,500 calories:

Food—	Quantity	Calories	Cost Revise to meet individual needs
Milk	3½–7 qts.	2,363 - 4,725	$0.53 –$0.56*
†Eggs	4	300 - 300	.12 – .12
Meat and fish	1–2 lbs.	600 - 1,200	.18 – .37
Fat	12 oz.–1 lb.	2,700 - 3,600	.251 - .335
Fruit	2–3 oranges or 2–3 apples plus 3–5 oz. dried fruit	500 - 750	.096 - .12
Vegetables:			
Green or root	2½–4 lbs.	300– 650	.21 – .28
Potatoes	2½–6 lbs.	760 - 1,824	.10 - .24
Legumes and cheese	4–8 oz.	400– 800	.054 - .108
Bread	2½–4½ lbs.	3,000– 5,100	.20 - .36
Cereal and flour	1–2½ lbs.	1,600– 4,000	.072– .18
Sugar	8 oz.–1 lb.	907 - 1,360	.025– .037
		13,430–24,609	$1,838–$2.710

1,918–3,515 calories daily—$0.137–$0.11 per 1,000 calories

*The seeming discrepancy in this slight difference in milk cost is due to use of some loose milk in cooking for older children.

†Eggs may be omitted when too expensive.

Over 16 and Adults

The allowance is from 2,500 to 3,500 calories:

Food—	Quantity	Calories	Cost Revise to meet individual needs
Milk	3½ qts.	2,363 - 2,363	$0.53 –$0.53
†Eggs	4	300 - 300	.12 - .12
Meat and fish	1½–2 lbs.	900 - 1,200	.27 – .37
Fat	12 oz.–1 lb.	2,700 - 3,600	.251 - .335
Fruit	3 oranges, 1 apple, 5 oz. dried fruit	750– 750	.12 – .12
Vegetables:			
Green or root	2½–4 lbs.	300 - 650	.21 – .28
Potatoes	5–7 lbs.	1,520– 2,128	.20 – .28
Legumes and cheese	6–8 oz.	600– 800	.081– .108
Bread	2½–4½ lbs.	3,000– 5,400	.20 – .36
Cereal and flour	2½–3½ lbs.	4,000 - 5,600	.18 - .25
Sugar	12 oz.–1 lb.	1,360 - 1,814	.037– .05
		17,793–24,605	$2.199–$2.803

2,512–3,515 calories daily—$0.124–$0.113 per 1,000 calories

†Eggs may be omitted when too expensive.

The second part of our report summarizes very briefly the appreciation of the facts which scientists have discovered with regard to the relation between the different types of food and health. It emphasizes the need of plenty of milk, vegetables, fruit, the grain products and fats, with a minimum of meats and sweets. These facts are stated in simple form and are called "The Fifteen Points for the Social Worker Who Has to Deal with the Nutrition Problem."

Keystone View Company

Direct to the home the social worker carries aids to intelligent living, for the problems of living are complex and most of us need help somewhere or other in order to maintain a true perspective and to give the proper value to ultimate good as against meeting a present exigency

Keystone View Company.

In the diet kitchen the dietitian inducts the child into the fascinating art of cookery. The child's love of new experience is utilized to introduce the fundamentals of an adequate dietary to the other members of the family who do not crave to learn.

The nutritional state of every child should be determined by periodic physical examinations.

(1) Fresh, clean, whole milk should be a prominent part of the daily diet of every child. Each child should have never less than a pint of milk a day, and a quart where possible. A quart should be allowed always for the undernourished and the younger children.

It is not necessary to drink the whole quart. Some of it may be taken in the form of cocoa, cream soups, simple desserts, etc.

(2) At least two vegetables a day for every child (Be sure every child eats his share). One (or two) vegetables in addition to potatoes should be eaten every day. Leaf vegetables should be used at least two or three times a week. On the other four or five days, any other vegetable may be used in addition to the potato.

Do not use soda in the cooking of vegetables.

Vegetables are abundant and relatively inexpensive in summer. When the supply is more limited in winter, increase potatoes and suggest beets, cabbage, carrots, celery, canned tomatoes, escarolle, kale, onions, squash, and turnips or other inexpensive ones. Spinach and lettuce are frequently found in the city in winter at a low cost. (Rice and macaroni are not substitutes for potatoes.)

(3) Fruit should be used (as a part of a meal) at least once every day whenever it can be afforded. When

Keystone View Company

The children are benefited by partaking of the food they have learned to prepare and a new appreciation of wholesome viands is awakened.

fruit is too expensive, insist on a third vegetable every day. Dried fruits are valuable but do not take the place of fresh fruit or vegetables.

All young children and any one whose chief article of food is milk should have fresh fruit or tomato juice every day.

(4) Meat is much less important than milk, fruits, and vegetables, and is more expensive. These foods should not be sacrificed for the sake of meat although a little meat is not undesirable. Meat should be limited to one meal a day and to three or four times a week is better.

(5) Cereals should be used daily. Served with milk, they are good either for breakfast or supper. They may be put into soups, or made into simple puddings, such as rice, farina, or cornstarch.

The ready-to-eat-cereals are expensive, but may be used occasionally to lend variety to the diet. They should not be used more than once or twice a week.

(6) It has been found that in families where economy is necessary, there is a tendency to eat too much sugar and too little fat. Allow at least from 3 to 4 lbs. of fat per week for every five members of the family and not over 4 lbs. of sugar.

(7) Water is an important item in the diet. Both children and adults should drink plenty of it, especially between meals.

(8) Tea, coffee, beer, or wine should never be given to children. Fried foods, except bacon, should never be given to children.

(9) A child should never be allowed to go to school without a good breakfast.

(10) Every child should have a good luncheon with a hot dish in it—either a soup, hot cocoa, or a hot vegetable dish.

(11) Only foods of mild flavor should be allowed between meals such as bread and butter, or bread and milk, or crackers and milk. Such mid-morning or mid-afternoon lunches should be given only when the regular meals are 5 or 6 hours apart. The lunches should then be given regularly, and at least 3 hours before the next meal.

(12) Candy, ice-cream and other sweets should not be eaten between meals, especially just before a meal.

(13) Regularity of meals is important. Have the meals at the same time every day.

(14) Prevent constipation. Coarse breads (graham and whole wheat), fruits, and vegetables will usually take care of this.

(15) Allow enough time for meals so that food may be chewed well. Mealtime should be a resting period for children.

The May issue of the *Southern Medical Journal* is devoted to a Symposium on Malaria. Problems treated are malarial relapses, necessity for malaria statistics in demonstration areas, urban malaria control, rural malaria control with the county as a unit, fish as an anti-mosquito agency, and the use of oil in the prevention of malaria.

The Bureau of Rehabilitation has come in contact with 2,604 industrial cripples, has registered 1,967, has assisted 936, and has terminated 845 cases because the persons no longer needed assistance or because they could not be located.

The Prophylaxis of Deafness

Parrel (*Jour. des Practiciens, March* 11, 1922) discusses the question which is so important from the social viewpoint. His conclusions are, that it is certain that the auditory troubles of children may be decreased by the regulation of the marriage of syphilitics and by advising against consanguinous unions of the descendants of families in which deafness is common. Naturally, it is necessary to treat syphilitic parents, syphilitic pregnant women, and the issue of syphilitic parents. He recommends the instruction of mothers in the rules of oto-rhino-pharyngeal hygiene and to teach them to accept without hesitation the intervention of a specialist to open up and disinfect the upper air passages. This will diminish very considerably the number of deaf adults. The majority of cases of deafness in adults have their point of departure in the rhino-pharyngeal affections of infancy. These occur as a rule in the nasal fossae, the tonsils and the pharynx. The frequency of otitis media in nurslings should not be forgotten. The medical inspectors of schools and colleges and the physicians of school infirmaries should exercise in collaboration an active surveillance of pupils from the acoustic and respiratory points of view, since in this way many cases of deafness may be discovered in time to permit an efficacious attack upon the causal disease. There should be a greater number of clinics for the periodical examination and treatment of infants and children in order that deafness may be prevented, ameliorated, or cured. The social importance of deafness does not require demonstration, since the inferiority of the deaf person manifests itself under all circumstances. It is the duty of physicians to emphasize to instructors and parents the importance of the prophylaxis of deafness and the ways by which the sense of hearing may be protected. These methods will no doubt reduce very considerably the prevalence of deafness.

The Central University of Mexico, which is entrusted with the revalidation of foreign diplomas, has announced that hereafter in order to prevent abuses by quacks, no foreign diplomas will be recognized. Physicians graduated from foreign countries will have to submit to a new and complete examination in order to have their degrees recognized in Mexico.

Disinfection After Infectious Diseases

By D. L. RICHARDSON, M.D., Superintendent, Providence City Hospital, Providence, R. I.

THE subject of terminal disinfection after infectious diseases is of widespread interest to hospitals and the public. No more frequent question is asked concerning isolation of contagious patients than what to do to the patient and room at the termination of the disease.

This paper will be confined to disinfection after scarlet fever, diphtheria, measles and diseases which we know to be transmitted by contact.

Terminal disinfection after insect-borne diseases, such as typhus fever, yellow fever and malaria, is quite unnecessary except to destroy infected insects. Isolation in such diseases should aim to prevent insects from becoming infected by the patient, and infected insects from biting well persons. Germs of such diseases are carried in the bodies of infected insects and contact with the patient offers no danger unless infected insects are about. Terminal disinfection after these diseases should be confined to measures to kill all insects in the quarters occupied by the patient.

The contact diseases constitute quite another problem. During the course of the illness the virus escapes from the body either in secretions or excretions of the body or in wound discharges. These are likely to be spread about more or less generally unless great care is taken to prevent that practice, so that theoretically any small or considerable portion of the room occupied by a patient or its contents may be contaminated.

From a practical point of view, however, it has been found by experience that the whole room and its contents are not contaminated. The things which are most likely to be a source of danger are those which most probably have been soiled by the secretions or excretions and discharges, such as the pillow, the bed clothing, the nursing utensils, bedside table, the chair or chairs occupied by the patient or nurse, the wash bowl and toilet, toilet articles, door knobs, etc. It also must be realized that different objects are contaminated to varying degrees. Germs die rather promptly after leaving the body and, while the process of contamination goes on during the illness, the virus is also being constantly killed by drying and by sunlight. As convalescence is established, the number of germs discharged from the body constantly decreases so that at the end of the established period of isolation the patient is quite harmless, except in the case of a small percentage of persons who become temporary or permanent carriers. It usually follows, then, that the infection which reaches various parts of a room early in the disease is quite dead, and that a room occupied throughout the entire course of the disease in most instances is harmless at its termination. On the other hand, if the patient dies or is transferred to another room during the acute process of the disease, the vacated room is a much greater source of danger.

> *"Fumigation, as ordinarily applied in terminal disinfection, accomplishes very little and is unnecessary. Too much stress has been placed upon contaminated surroundings and too little upon the patient himself or upon those persons whom he has exposed. In contact diseases the whole room occupied by the patient is not contaminated, and fumigation serves no other purpose than to appease the conscience of hospital authorities, health officers and the public. The chief source of infection in contact diseases is not environment but direct and intimate contact with the fresh secretions or excretions of persons who are suffering from diseases in a frank or unrecognizable form and with carriers."*

This more rational view of room contamination is gaining rapid headway. In the minds of those who still cling to the idea of aerial transmission of disease, the whole room occupied by a patient is a hotbed of infection. Careful observation in the hospital and home prove this view is not tenable.

Fumigation is no longer thought to be necessary and serves no other purpose than to appease the conscience of hospital authorities, health officers and the public. In March, 1905, Chapin in Providence ceased fumigation after diphtheria unless it was requested by the family. In his annual report for 1908 he statistically shows that there had been no greater recurrence of the disease in homes after discontinuing disinfection than before. In November, 1908 he ceased fumigation after scarlet fever and subsequent experience confirmed the fact that it was not necessary after this disease. Since that time gaseous disinfection after contact disease has been quite generally abandoned in the United States although it is still practiced in many communities and hospitals.

That gaseous disinfection is at least unnecessary, hospital experience has conclusively shown. Since the opening of the Providence City Hospital in 1910 no fumigation has ever been done. There has been no evidence in a single instance that thorough cleanliness of the room and contents was not entirely sufficient. A detailed study of this may be found in an article published by the writer in 1913-1914 Vol. 1, pp. 70-80 of The *Modern Hospital*. It is obvious from this study that no child who contracted an infectious disease in the hospital did by any stretch of imagination pick up the infection from the room which had been previously occupied by the patient suffering from the same disease. The same procedure has been carried out for the prevention of ambulance infection and there is no evidence that any ambulance has ever been a source of disease.

In terminating isolation it should be emphasized that the patient is a far greater potential danger to others than the room he occupied during his illness. He may be a carrier of diphtheria, typhoid, or scarlet fever, as the case may be. It is a very difficult problem to free him from such infection; certainly it cannot be done by any kind of a bath. The room and its contents however are quite free from infection by the time the patient convalesces in it. If, as has been stated, the patient is sent to the hospital or dies in the acute process of a disease, then the possibility of room infection is of some importance. It is not contended that room infection might not be possible, particularly if contents may be smeared with secretions or excretions, but it is strongly maintained that such a source of infection is very slight and that the importance of terminal dis-

infection has been much exaggerated. If the excretions and secretions of the patient have been promptly disposed of and strict cleanliness observed during the nursing of the patient, room infection is trifling.

Terminal disinfection applies first to the patient, secondly to the room and its contents.

It is very proper for the patient to have a bath on discharge; but any infection carried on the surface of the body is not to be compared to the possibility of germs being carried in the nose and throat or intestinal tract. A bath of soap and water, including a shampoo, is quite sufficient. It is not of sufficient importance to require the use of chemical solutions. In the hospital a patient should receive the terminal bath a day before discharge and be placed in a "clean room" so that he will not be sent out of doors before he has had time to dry satisfactorily. This is particullarly important after scarlet fever, for exposure may set up rhinitis and if the patient is still a carrier a discharging nose renders him much more infectious. After the cleansing bath the patient should put on clean clothing and the infected clothing be left in the room.

The treatment of the room after discharge of a patient differs in the home and in the hospital. Terminal disinfection of a room in the hospital will first be described. It is assumed that the room has been occupied by the patient alone. The patient's washable clothing, the bed linen, towels, etc., should be collected into a bundle and sent to the laundry to be washed. Mattresses and pillows should be put out in the sun for at least six hours. If the patient dies in the acute stage of the disease or is transferred from the room while acutely ill, or if the clothing is obviously soiled, it should be sterilized by steam under fifteen pound pressure for thirty minutes. Continued sterilization by steam injuries the fabric so that mattresses and pillows soon become very much damaged. It is found that sunning in the open air is under ordinary circumstances quite sufficient. Such textile clothing of the patient as is not washable should be hung out in the sun for at least six hours. Shoes, belts, gloves, rubber goods, money and other valuables may be washed with soap and water and air dried, preferably in the sunlight. Magazines, papers and books, should be destroyed or pinned up in a towel and sterilized by steam. All nursing utensils not damaged by heat should be boiled for at least ten minutes. Thermometers and other small articles can be submerged in 70 per cent alcohol solution or of phenol 1-60 for half an hour. Toilet articles should be washed with soap and water and air dried. The bed, bedside table, chair, bell cord, lavatory, door knobs, curtain cords and the wall about the lavatory and window should be washed with soap and water.

If the patient sick with an infectious disease is in the same room with other patients, it is very important to ascertain whether the other patients are immune to this disease. All those who are susceptible should be isolated separately during a period equal to the incubation period of that disease. The first patient should be isolated as soon as discovered, preferably in a separate room. After his removal disinfection should be carried out just as described above except washing of the walls. The mattress, pillow, bed linen, nursing utensils may be moved with him to the room where he is isolated if it is in the same ward. It is not necessary to clean the whole room or to subject other patients in the room to the same procedure, but the latter should be watched carefully so that symptoms may be detected at the earliest possible moment.

Terminal disinfection in the home is more preplexing because of the presence of many articles of furniture, draperies, shades, carpets, rugs and the like. Again it should be emphasized that the room as a whole is very slightly infected. It is not necessary to destroy these things nor subject them to a damaging process of sterilization. Neither is it necessary to repaint and paper the room.

Methods of disinfection as described for a room in an institution are applicable in a home, including of course the cleansing bath of the patient. The mattress and pillow, blankets, draperies, rugs, etc., should be put out in the sun for at least six hours. Furniture and woodwork can be washed with soap and water, employing a neutral soap so that the finish will not be damaged. Attention should be paid also to the bathroom and fixtures and especially to utensils used by the patient or his nurse, as already described. Utensils which are boilable should be boiled in a pan before being washed. All the linen in the room should likewise be boiled before washing. After airing for forty-eight hours the room is quite safe for any one to occupy.

It is quite right that terminal disinfection should be carried out faithfully but outside of the bed, bed linen and nursing utensils, possibilities of infection are very slight. These methods of disinfection are really of value, but fumigation as ordinarily applied accomplishes very little and is unnecessary. Too much stress has been put upon contaminated surroundings and too little upon the patient himself of those persons whom he has exposed. The chief source of infection in contact diseases is not environment but direct or intimate contact with the fresh secretions or excretions of persons who are suffering from diseases in a frank or unrecognizable form, and with carriers.

The Wisconsin state board of health has appointed Miss Aimee Zillmer of Milwaukee as assistant in education for lecture work in social hygiene and related subjects. Miss Zillmer's last work was with the White-Williams Foundation at Philadelphia.

A State program for mental hygiene, comprising not only measures for preventing and treating mental diseases, but also a center of information on maintenance of mental health and an agency to re-establish paroled and discharged patients, was outlined by Dr. C. Floyd Haviland of Albany, Chairman of the New York State Hospital Commission before the State Charities Aid Association.

Honored at St. Louis

Dr. John Foote of Washington was elected president of the Society of American Teachers of Diseases of Children at St. Louis which met in connection with the American Medical Association.

Physical Exercise in Preventive Medicine*

By VERNER T. SCOTT, Captain, Medical Corps, Flight Surgeon, U. S. Army, Washington, D. C.

COMPETITIVE athletics are sports par excellence for gaining an *esprit de corps* for military stations and colleges and if under daily supervision of an experienced medical officer very little harm will result, but from the standpoint of physical exercise, the very ones who need the exercise most are unable to make the team. One should not engage in competitive athletics for exercise alone. The training is intense; invariably comes the slump after the season is over, and in many cases the men are in as bad if not worse condition than before. Moderate daily physical exercise should be the aim. Moderation in competitive athletics is not possible.

Competitive athletics should be encouraged because they are the expression of a progressive race and foster sportsmanship, a much needed element in any country. An experienced medical officer, however, should be consulted in the choice of the athletes and given authority of daily medical supervision.

Mass athletics, although beneficial individually, will not be a success unless compulsory. It has been my experience, as an athletic officer, that the men in good condition take daily physical exercise on their own initiative, while men in poor physical condition lack the energy to take part unless ordered or urged to do so.

Setting-up exercises are too formal and lack the zest found in games. We have found that the exercises valuable to the aviator will be found in volley ball, tennis, equitation, swimming, or golf. Volley ball is gaining in popularity and has the advantage of being simple and available for any number of men. As an exercise for neuromuscular coordination volley ball is unsurpassed. The command to perform the various movements in the setting-up exercises is called by a leader. All the movements of the setting-up exercises and many more are made by a volley ball player in a close contest. The command for these movements originates in the brain of the player and the decision and performance are carried on with lightning-like rapidity. Tennis is a good form of exercise but requires a great deal of skill and, unless matched evenly, the players lose their enthusiasm. Swimming and equitation are fine outdoor sports and good exercise. The self-confidence and well being they impart should be a sufficient incentive to their universal practice. Golf offers good, conservative exercise but should be alternated with a game of more active movements such as volley ball, tennis, or swimming. A brisk walk of fifteen or twenty miles daily will do more to promote physical efficiency than one-half day a week of golf.

A good physical condition contributes to mental alertness, good health, and high morale. A poor physical condition is conducive to morbid thoughts, petty ailments, and low morale. Whether a bookkeeper or an aviator, physical fitness will be found a factor both in a man's general efficiency and in the degree of health he enjoys.

Athletics Aids Morale

Physically a man is either in poor condition, fair condition, good condition, or hard condition. A man in poor condition is easily exhausted by mental or physical exertion, is irritable, exhibits a sallow complexion, dull eyes. He usually complains of constipation and headaches, and sometimes of nervousness and insomnia. A man in fair condition strikes a medium between good and poor. A good condition is evidenced by a good physical bearing, an elastic step, bright eyes, and a healthy complexion. Such a man is not easily fatigued, but is physically fit for the mental and physical conflicts of everyday life. Hard condition is that physical state built up by a rigid system of training. It implies a general fitness for competitive athletics, but overtraining for the ordinary routine of life.

In May, 1921, the majority of the fliers were found to be in poor physical condition. With the consent and encouragement of the commanding officer the hour from 11:00 to 12:30 was set aside for exercise. The exercise selected was volley ball. In one month's time there was noted an increase in physical efficiency and a higher morale. Fewer complaints arose out of petty ailments. The exercise has been continued on its merits by order of the commanding officer.

The table below will show the schedules of rating according to Schneider's index. Only the total scores are given, but they summarize the index as taken once a month from May till February, between the hours of nine and eleven a. m. The men were not told the day they were to be tested nor were their habits controlled after 4:00 p. m. Schneider[1] grades on reclining pulse, standing pulse, and the increase from reclining to standing, increase after exercise, time of return of pulse to normal, and difference in reclining and standing systolic blood pressure. For use by flight surgeons. I have made the following arbitrary divisions: Very good, 17 to 18; good, 14 to 16; fair, 8 to 13; poor, 7 or less.

The table shows a decided increase in the averages after compulsory exercise. There is no steady increase from month to month, nor was it expected where fatigue effects of cross country flights, loss of sleep and excesses were factors to be considered,[2] but it is significent that in spite of these things, physical exercise kept

1. Schneider, F. C.: A Cardiovascular Rating as a Measure of Physical Fatigue and Efficiency, J. A. M. A., May 29, 1920.
2. Scott, Verner T.: The Application of Certain Physical Efficiency Tests, J. A. M. A., March 12, 1921, 705-707.

Increasing Fitness Under Daily Physical Exercise

		No daily exercise	One hour daily exercise				
No.	Name	Index May, 1921	Index June, 1921	Index July, 1921	Index August, 1921	Index Dec., 1921	Index Jan., 1922
1	H. Z. B.	17	17	17	18	18	16
2	W. B.	16	17	15	17	16	17
3	A. B.	8	11	12	15	7	11
4	R. H.	4	15	2	8	10	14
5	R. A. D.		14	15	10		14
6	M. K. R.	11	7		15		14
7	M. S.	11		14		16	16
8	T. S.	12	17	17	16	17	17
9	T. S. V.	13	15	14	14	14	15
10	P. W.	5	17	16	15	15	16
11	L. W.	9	14	15		15	16
	Average	10.6	14.4	13.7	14.2	14.2	15.4

*Reprinted from The Military Surgeon, June, 1922.

THE ability to perceive what constitutes true excellence is most often seen in those whose powers of perception have been whetted by comprehensive training and broad experience. It requires a keen and capacious mind to make the fine distinctions that are always contributive to correct decisions.

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the averages for the unit on a higher plane. Nos. 1 and 2 were not affected by the exercise because of the nature of their work. One is a utility and the other an engineering officer. They work in the open day after day and admit they seldom get less than eight hours' sleep at night. No. 3 progressed until December, and in taking the usual history he complained of a headache and said his bowels had not moved for three days. No. 4 in July gives history of very little exercise due to other duties, complains of a headache and constipation and six hours' sleep. No. 6 in June returned the day before from Boston where he flew thirty-five hours in one week making aerial photographs of the city.

From the table we gain the following:

	Before daily exercise	*After daily exercise*
Very good 17-18	1 (10%)	4 (40%)
Good 14-16	1 (10%)	4 (40%)
Fair 8-13	6 (60%)	1 (10%)
Poor 7 or less	2 (20%)	1 (10%)

It is obvious that an hour spent in physical exercise is worth while and compensates for the time taken up when a group of men who are rated physically as 60 per cent fair and 20 per cent poor can be classed a month later as 80 per cent good and very good.

Although physical exercise is the main factor in physical fitness, it will not alone keep a man in good physical condition. Other factors to be considered are loss of sleep, constipation, excesses and fatigue effects. One hour a day compulsory mass athletics will serve to keep a group of men in a higher state of physical efficiency, increase the morale, and lower the incidence of petty ailments. Setting-up exercises are dull and in no way can be compared to games as a form of exercise. Everything else being equal, one hour a day of physical exercise with eight hours' sleep and one good bowel movement a day will keep any flier fit for any flying duty he is called upon to perform.[3]

3. Acknowledgment is made to Private E. Barr, Medical Department, for assistance in making these tests.

Sanitary Regulations in Illinois Schools*

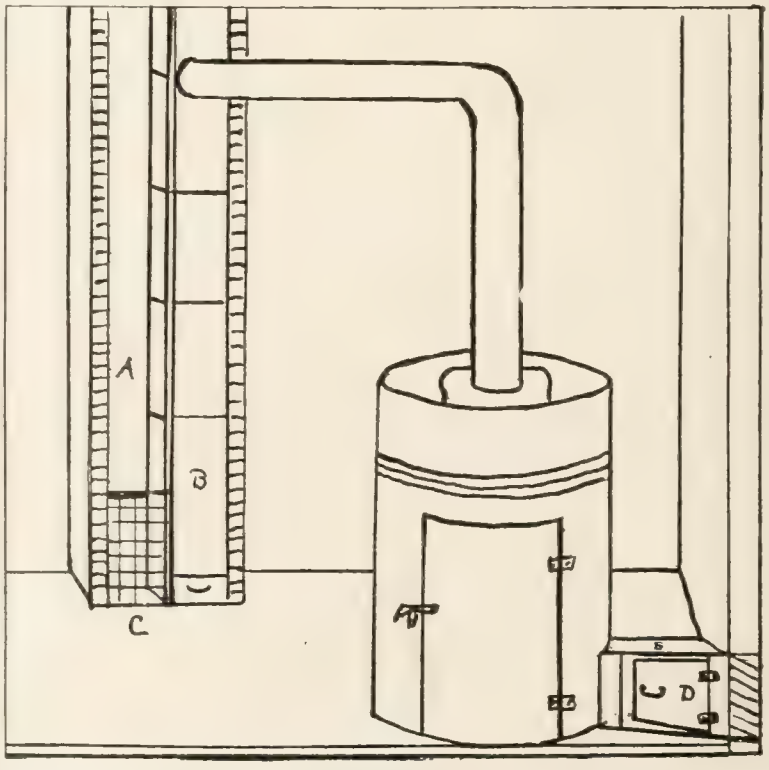
What Shall It Profit a Child to Gain Knowledge and Lose Health?

By HARRY F. FERGUSON, Chief Sanitary Engineer, State Department of Health, Springfield, Ill.

UNDOUBTEDLY many of the troubles that affect one in later life have their start at school age, and it is quite probable that some of these troubles are the result of insanitary conditions at our public schools. We require by state law that children attend school. Is it not, therefore, wrong to neglect to furnish them at school with good air, adequate heat and light, good water supply, sanitary toilet facilities, comfortable seats and desks, and general cleanly and sanitary surroundings?

The effect of school attendance on health and growth has been investigated in several countries, and from these investigations it has been determined that elementary schools have had a noticeable effect. Some of these studies and investigations are reported by O. W. Hallin in the *Journal* of the American Public Health Association for September, 1919. A physician at Gottenburg, Sweden, kept weights for twenty years in three girls' schools. He weighed each pupil twice a year, at the beginning and at the end of the three-month vacation period. These records show a monthly gain in weight greater for the three-month vacation period than for the entire nine-month school period. For pupils eight years of age the gain for the three-month period was one-fourth greater than that for the nine-month school period, and the gain for the three-month period over that for the nine-month period increased as the age increased and was three times for pupils fifteen years of age. Another physician at Leipzig states that the height and weight increase for pupils for the first year at school is less than for any other preceding year.

Seeking a probable cause for these



A proper heating system is necessary to the health of the child in the rural school. The illustration shows a room heater jacketed like a furnace. (a) Represents the foul air flue; (b) the chimney tile; (c) the opening into foul air flue, and (d) the door which controls the supply of air to the furnace.

*Reprinted from the Illinois Health News. Cuts furnished through the courtesy of the State Superintendent of Public Instruction, Springfield, Ill.

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Akron—11 Orpheum Arcade.
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Altoona—Bendheim's, 1302 11th Ave
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Bridgeport—W. L. Y.
Brooklyn—414 Fulton St.
Buffalo—639 Main St.
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Charleston—J. F. Condon & Sons
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Portland, Me.—Palmer Shoe Co.
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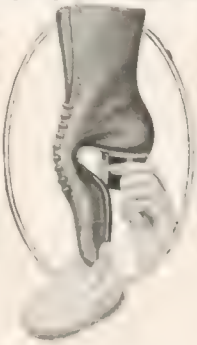

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recorded harmful effects on children of attendance at school it would seem evident that among the factors detrimental to the health and welfare of the school children might be considered (1) deficient sanitation including air, heat, light, water, toilet facilities, and general sanitary conditions, (2) deficient physical exercise, and (3) mental overstrain or fatigue.

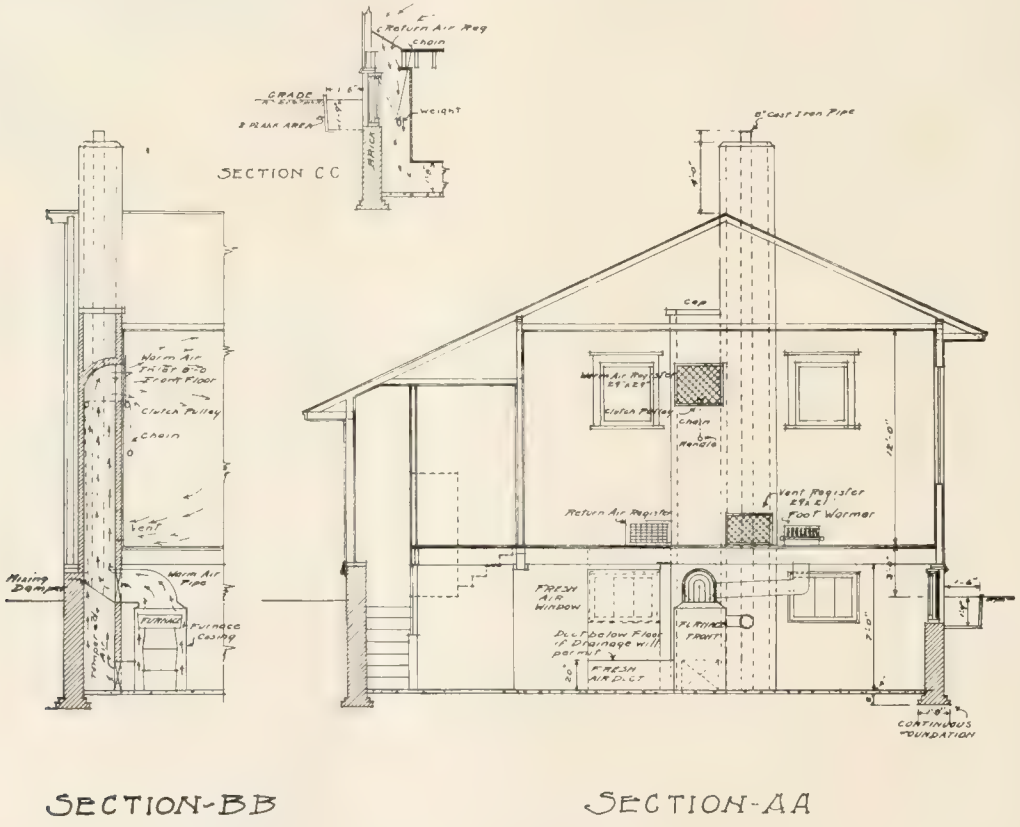
A sanitary school will not only protect the health of the school children but it should serve as a model in sanitation for the guidance of the entire community in which the school is located. A school should be pleasing and attractive in appearance, in furnishings, and in surroundings, so that the community as a whole may be proud of it and so that pupils will take an interest in the school and will endeavor to carry out at home their knowledge of sanitary conditions gained both from teachings and observations at the school.

Appreciating the injustice of requiring school attendance when school buildings are insanitary and detrimental to the health of the pupils, the legislature in 1915 amended the school law so as to provide that every school must be constructed and furnished so as to protect the health and safety of the pupils and the teachers. This law does not specify in detail the conditions that must exist, but authorizes the State Superintendent of Public Instruction to prepare, with the advice of the State Department of Public Health, the State Architect, and the State Fire Marshal, specifications and standards for the guidance of school directors and boards of education. The specifications for minimum requirements cover heating, ventilation, lighting, seating, water supply, toilets, and safety against fire.

The law makes it the duty of the county superintendents of schools to inspect plans and specifications for school buildings that are submitted to them by boards of education or boards of directors, and to approve those plans which comply with the specifications and requirements prepared and published by the State Superintendent of Public Instruction. It is the duty of the county superintendents also to inspect existing public schools under their supervision and to notify the proper school officials whether the schools meet the minimum requirements.

A county superintendent has authority to request the State Department of Public Health, the State Fire Marshal, or the State Architect to inspect school buildings which appear to him to be insanitary or unsafe and upon receipt of an unfavorable report from any one of the above State agencies the county superintendent shall condemn the building and notify in writing the board of directors or board of education. When a board of trustees has had notice from a county superintendent that a district has not kept school as required by law, that part of the State distributive fund apportioned to such district shall be withheld until the county superintendent has given notice in writing that the requirements of the law have been complied with.

For new school buildings there should be no difficulty or excuse for not fulfilling all sanitary requirements. In planning a new school the first decision that must be made, in which sanitary conditions are involved, is the suitability of a site or sites. Unfortunately sometimes school buildings have been poorly located because of jealousies existing between different factions in school districts. These personal jealousies should be submerged for the best interests of all the school children and thus eventually for the best interests of the community. The site should be considered from the standpoint of general drainage conditions, water-sup-



Cross section of school, showing air currents.

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ply possibilities, sewage-disposal facilities, objectionable noises such as from industrial establishments, railroad yards, street-car lines, etc., and the site should be such that the air will be clear and clean and that light will not be shut off by other buildings or too many trees. Drainage conditions should be such as to afford good playgrounds as well as to maintain the site of the building dry.

In planning the new building itself the requirements adopted and published by the State Superintendent of Public Instruction should be complied with. For the country and smaller schools and layout and arrangement for "standard schools" prepared by the Superintendent of Public Instruction are valuable guides and for the larger schools the services of an architect experienced in school design and sanitary requirements is essential for working out suitable detail plans.

A considerable number of existing schools were constructed before the full importance of sanitary conditions was appreciated, and it is now necessary to study the existing school buildings to note their defects and insofar as possible to correct any defects by alterations or additions, or, if necessary, build new buildings. Since the passage of the amendments to the school law by the 1915 legislature considerable progress has been made in the improvement of unsatisfactory school buildings. In this work the Division of Engineering and Sanitation of the State Department of Public Health has cooperated and has made a considerable number of sanitary inspections at the request of the county superintendents of schools, local school officials, and parents of school children. These sanitary inspections cover heating and ventilation, lighting, seating, water supply, toilet facilities, and general sanitary and drainage conditions.

The heating and ventilation in a school building are satisfactory when a proper temperature is constantly maintained, when the humidity is not too low, and when there is a proper change in the air in each room, especially the classrooms. It has been stated that pure air will possibly cure as many ills as medicine and will prevent more ills than it will cure. Bad air makes pupils drowsy and the brain dull and thus not only injures the pupils, but interferes with the aim of the pupils in going to school, which is to gain knowledge.

Sanitary Rules for Schools

The temperature of a schoolroom should be about 68 to 70 degrees Fahrenheit, and the humidity should not be too low. If air at 20 degrees is raised to a temperature of 68 degrees without adding moisture, then the resulting air is only about one-seventh saturated. If air at 20 degrees and a humidity of 70 degrees is raised to 68 degrees, then the humidity will be only 12. It is considered that a humidity of at least 50 is desirable except near cold windows and in extremely cold weather, when a humidity of 40 might be permissible.

In school buildings of more than one room having heating equipment in the basement the problem is to distribute the heat properly to the different rooms and to remove the foul air through suitable vent openings connected to foul-air flues. Information on installations for hot-air furnaces and steam and hot-water heaters is given in a circular published by the State Department of Public Instruction dealing with standard elementary schools. With a central heating plant positive ventilating systems which require the use of a fan or blower or the gravity of so-called "direct-indirect" systems which rely upon a natural movement of air caused by difference in temperature can be used.

For the smaller school buildings without a basement the problem is the installation of a heater in each room, which will not only heat the room and afford suitable ventilation but will not subject the pupils near the stove to too warm temperatures. A room heater should be installed with a suitable jacket so that it will form virtually a warm-air furnace.

It should be installed so as to bring in air from outdoors and from the floor near the entrance doors and heat the air as it passes by the furnace. The size of grate areas, fresh-air ducts, and smoke and ventilating flues for rooms of different capacities are given in the circular published by the State Superintendent of Public Instruction.

With proper heating and ventilating systems, fresh air from the outside will be brought into the school building and warmed to a proper temperature. The warmed air rises to the top of the rooms and the foul air being colder sinks to the floor and ventilating flues remove it from the rooms. Thus a constant supply of fresh air and removal of foul air results. With the gravity system of ventilation the circulation of air will decrease as the temperature of the outside air increases, but with the warmer outside temperatures additional ventilation can be gained by means of windows.

The detrimental effects of inadequate or wrong lighting upon children, who naturally have perfect vision, are slow to be noticed, but when they do become noticeable it is often too late to correct the impaired vision. Moreover, during the time the pupil has been subject to unnecessary eyestrain the quality of his work has undoubtedly been below what it would have been if adequate lighting facilities had prevailed. The affects of

When appetite must be increased without the aid of exercise

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poor lighting upon the eyes of school children may be comparable in a way to the eventual wearing of a stone by the constant action of drops of water. The effect of a few drops is not noticeable, but repeatedly subjected to dropping water, the stone will wear.

The requirements for lighting adopted by the State Superintendent of Public Instruction are as follows:

There shall be no windows in the wall which the seated school children face. The walls shall be a soft light tint, gray, tan, or very light olive green. The ceiling shall be a very light tint.

In school buildings hereafter erected or remodeled the windows shall be at the left of the seated pupils. Windows at the back of the room are permissible, but shall be at least six feet from the floor.

The windows at the left shall be set with the least possible space between them and shall be not less than 3 feet nor more than 4 feet from the floor.

The glass surface in study rooms shall not be less than one-fifth of the floor space. When the light is from the north only or when trees are near-by, it shall be not less than one-fourth of the floor surface.

All windows shall be provided with good adjustable shades.

In all buildings windows in the wall which the seated pupils face shall be permanently walled up, so that no light may enter from that direction.

If there are full length windows on the right toward the front of the seated children, the lower sash shall be covered so as to shut out the light from that part completely. If this makes the light insufficient, additional windows shall be provided at the left.

Windows in front of the pupils are especially bad because the light shines directly into the eyes and either causes eyestrain or requires the pupils to bend their heads down into unnatural positions or hold books high so as to shut off the light reaching the eyes from in front. The windows on the left of pupils should be spaced as closely together as possible in order to provide even lighting in the room and prevent cross lighting.

Proper seating facilities can not strictly come under the classification of sanitary conditions but seating facilities are noted by sanitary engineers of the department in making inspections of schools inasmuch as the arrangement of seats has to be considered in connection with lighting conditions. The requirements for Illinois standard schools provide that each schoolroom shall be furnished with single desks which are of proper sizes and adjusted for the pupils who occupy them. The circular published by the State Superintendent of Public Instruction gives the sizes of desks necessary for pupils of different ages and information as to their proper location.

Improper seating has a direct effect on the health of the child, especially in connection with lighting conditions and as such gains the attention of the sanitary engineer in inspection. The first of the series of three pictures shows the desk too high; the second the desk is lowered but the seat is too far away from the desk; in the third the seat does not strike the shoulders of the boy.

Inspected Water Supply

If a public water supply of good sanitary quality is available then only that supply should be furnished at the school building and grounds. If a safe public water supply is not available, or if there is no public water supply, then a private supply must, of course, be developed from wells or cisterns or in some cases from springs. Whatever the source of supply it should be certain that it is not subject to contamination. If a well is used as a source of supply, it should be so constructed and located that the water will not be subject to contamination either by underground seepage or at the top by surface water and waste pumpage. Drilled or driven wells cased with iron pipes are preferable, but wherever soil formations do not permit the installation of drilled or driven wells, dug wells can be made satisfactory if the walls are properly constructed and the tops suitably covered. The walls should be made water-tight for a distance of 8 to 10 feet below the surface of the ground and the tops should be covered by means of substantial sloping concrete platforms and drains for excess pumpage provided. Manhole openings can be provided in the tops of wells to afford access for inspection and cleaning, but these openings should be protected by suitable covers so that the entire top will be water-tight. Bulletins describing the upper construction of wells will be sent by the State Department of Public Health on request.

The distance that a well must be from a cesspool, privy, or other source of pollution, that might contaminate the well by underground seepage, depends upon the type of well installed and the character of the underground formation. If the well is of the drilled or driven type and passes through an impervious layer of hardpan or compact clay, then it could be located nearer sources of pollution with less danger of contamination than if a dug well were installed. It may be stated that on an average a dug well should be at least 100 feet from any source of contamination. If a satisfactory well supply can not be obtained, cisterns can be used. Cisterns should be water-tight to prevent infiltration of shallow ground water. They should preferably be provided with effective filters which should be cleansed once a year.

If a spring is used all possible information as to the source of the spring water should be obtained. It should be assured that the spring water is not subject to pollution underground or at the spring itself. It is a faulty and somewhat common belief that all spring water is safe, when actually springs are subject to as much if not more contamination than wells in similar surroundings.

Analyses of samples of water are made free by the State Department of Public Health. Analyses are made only of samples collected in suitable containers which are sent by the department on request. In case the analyses show an unsatisfactory water and the reason for the unsatisfactory results are not apparent from the information given by the person submitting the sample, an inspection by a sanitary engineer of the department can be made. If a school district is planning to develop a new source of water supply for a school the opinion of the State Department of Public Health upon the proposed new source of supply can be obtained upon request.

The requirements of the State Superintendent of Public Instruction include the following provisions rela-

Essential Points

in the

Diet of Growth

1. The food must contain those food accessory substances known as vitamines, but the presence of the vitamines is not sufficient in itself.

2. The food must be well balanced, for a deficiency in one element means the ineffective action of the other food elements.

3. The vitamine-containing food even though well balanced must be one that is easily assimilated. It is a physiological crime to clog the system with fats that cannot be digested.

VIROL as it reaches the public contains the vitamines; it is well balanced, and can be assimilated in the most delicate conditions. That is why VIROL is used in more than 2,500 hospitals and infant clinics.

The presence of vitamines in VIROL as sold to the public is established by an independent report by the Bio-Chemical Department of the University of Cambridge, a copy of which will be sent to any member of the medical profession on request.

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tive to the distribution of water within the school: (1) *Water Containers.* Where drinking water is kept in the schoolroom it shall be kept in a clean container, provided with a cover and a faucet. (2) *Individual Cups.* The use of the common drinking cup is prohibited by law. When cups are necessary each person shall be provided with his own cup. These shall be placed in a dustproof case, which shall be kept closed except when removing or replacing a cup. The cups shall be kept clean. (3) *Bubbling Fountains.* Bubbling drinking fountains are strongly recommended. No fountain shall be installed which enables the lips to touch the opening of the water pipe.

Toilet Facilities

The problem of toilet facilities and disposal of sewage from school buildings may be divided into four general classes: (1) Where a public sanitary sewer system is available; (2) where a public sanitary sewer system is not available but running water is available and a private sewage-disposal system can be installed: (3) where chemical toilets are feasible: and (4) where ordinary privies are to be used.

If a public sanitary sewer system is available then the question of toilet facilities is easily solved by the installation of standard plumbing fixtures and connection of a school sanitary drain to the sanitary sewer system. If a public sanitary sewer system is not available but running water is available and plumbing fixtures are to be installed in the school building, then it becomes a problem as to how to dispose of the sewage. Generally this can be done by installing a suitable sewage settling tank and discharging the overflow from the tank into an outlet tile to a watercourse or to a surface disposal system. Fortunately schools are not in session during the summer months when the flow in streams is the lowest, and thus the possibility of objectionable stream pollution by discharge of partially treated sewage is minimized. In installing a sewage tank it should be realized that a tank does not thoroughly purify sewage but simply serves to remove a portion of the suspended solids and a portion of the organic matters. Each installation must take into consideration local conditions, such as proximity of wells to the school sewer and tank; the location, character and use of the outlet watercourse; and the possible location for a sewage tank. When a school district is planning to install such a system the advice of the State Department of Public Health should be obtained.

Chemical toilets, when properly installed and properly maintained, are an improvement over the ordinary privy. There are several suitable installations on the market and school-district officials should have no difficulty in securing satisfactory installations. Installations of privies should be made so that they will be fly-tight and will not serve as a source pollution to any wells in the neighborhood. Bulletins dealing with sanitary privies may be obtained from the State Department of Public Health. The requirements of the State Superintendent of Public Instruction included the following provisions relative to outdoor toilets:

The boys' toilet shall have a tight board screen at the front and side not less than 5 feet high. Behind this shall be substantial zinc-lined urinal troughs. The lower one shall be 16 inches from the ground and the higher one 26 inches from the ground at the highest point. When dry closets are used the urinals shall drain into a separate underground receptacle.

The toilet buildings shall rest on a substantial brick or concrete foundation to which they shall be securely bolted. The buildings shall be well-lighted and shall constitute an adequate protection against inclement weather. There shall be at least two seats and not fewer than one seat for every 20 children using them. One or more seats shall be 10 inches high, the rest 16 inches.

Where there is danger of contaminating the well, the vault shall be concrete, so constructed as to prevent leakage of sewage and so that it may be cleaned. Light shall be completely shut out of the vault. The seats shall be provided with covers, securely hinged in such a way as to close automatically. The vault shall be ventilated with a flue, and a cross-sectional area of not less than 64 square inches and extending from the vault through the roof. One of the chief aims is to shut out flies, which spread contagious diseases.

Food Conditions in the Cook County Jail*

ANYTHING approaching an adequate survey of the food situation in the County Jail could be made only after a first hand study,—living at the jail and following through the whole course of successive days. This has not been possible. With the cooperation of Captain Westbrook, the warden, and his assistant, the Committee of Dietitians visited the kitchen several times, inspected the raw food materials, examined the prepared foods, watched the serving, and noted in a general way the amount of waste. The report is destined to present merely a general picture of conditions as noted by a committee accustomed to supervising the cooking and serving for large groups.

It is evidently the intention of the County to furnish the persons held in the County Jail an inexpensive diet that is adequate to maintain them in proper physical condition. A more detailed study made by Winthrop D. Lane reports on the kind and character of the foods served. The present food served, though sufficient in quantity and for the most part wholesome in quality, does not constitute a balanced ration. It lacks fat, no fat being served except that contained in the meat. It lacks sugar,—no sugar being included in the general diet. The amounts of fat and sugar incorporation in the broad are negligible. It lacks food that contains vitamines, a factor of increased importance because of the fact that nearly twenty per cent of the inmates are boys,—2,000 out of a total of 8,600 in 1921. The previous food habits of the inmates should not be the criterion, as those very habits may have been a contributary factor in their delinquency. The foods are not well distributed. Rice, potatoes, and bread are served at one meal with no other vegetable; or potatoes, hominy and bread at another.

With a budget of thirty-six thousand dollars and a census of approximately 850, the menu must of necessity be limited. No doubt habit and precedent play an important part both in the buying and ordering, as well as the preparation of the food. It takes imagination and much planning to vary a twelve cent or less

*Section of a report on a survey of conditions at the Cook County jail, made under the direction of the Chicago Community Trust. The recommendations in regard to the dietary published herewith are the result of a study undertaken by a special committee of the Chicago Dietetic Association consisting of four members, as follows: Emma B. Aylward, dietitian, Presbyterian School for Nurses, chairman; Elizabeth Tuft, dietitian, Wesley Memorial Hospital; Breta Luther, dietitian, Cook County Hospital, and Rose Straka, dietitian, Presbyterian Hospital.

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Physicians and nurses recommend Kotex because of their extraordinary absorbent qualities which, in the form of Cellucotton, first won the attention of army surgeons in France, and was there adapted by war nurses to their own needs.

Kotex come in two sizes—Regular and Hospital. The Regular size Kotex has a Cellucotton filler 9 inches long by 3½ inches wide, in gauze 22 inches long—generous ends for pinning. The Hospital size is longer with additional thickness, and therefore even greater "absorbency." Kotex are sold in drug, dry-goods and department stores everywhere.

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

per capita menu to any considerable degree. A few suggestions are, therefore, included in this report in the form of a week's menus worked out on the present day capita cost. The prices taken are from invoices of materials received in May of this year, and prices given Mr. Henry A. Zender, the County Superintendent of Public Service, and by firms furnishing foodstuffs to the jail. Requisitions for twenty-eight days in the month of April are as follows:

Classification Supplies

Meat—	
Salt Pork	6 pounds
Chuck	6,380 pounds
Corn Beef	1,900 pounds
Fish	
Lard	60 pounds
Milk	299 gallons
Flour	147 sacks
Macaroni	2 barrels
Rice	300 pounds
Peas	1,900 pounds
Beans	900 pounds
Potatoes	135 sacks
Cabbage	40 sacks
Carrots	18 sacks
Turnips	33 sacks
Onions	2 sacks
Tomatoes	9 cans
Sugar for women	174 pounds
Syrup for women	42 cans
Jelly for women	120 cans
Coffee	1,300 pounds
Tea	10 pounds
Salt	3 barrels
Pepper	12 packages

The Comptroller's report for 1921 shows that of the $34,537.53 spent for food, the $15,403.22 was spent for meat. The inclusion of some butter or butter substitute, and milk in place of the meat would undoubtedly have saved much waste of bread and cereal and would have resulted in a better balance. The total of 147 sacks or 105 barrels of flour is an average of three and one-half barrels per day, enough to make 850 to 900 pounds of bread, or one pound per person per day, three-fourths pound is sufficient with other starchy foods in diet. Split pea soup is served three times per week.† The monotony of having the same soup repeated every second day is a guarantee that much goes down the sewer.

One thousand three hundred pounds of coffee, serving every morning and alternate evening, eighty and ninety gallons, allows thirty pounds per meal, a sufficient amount. If the coffee were ground finer and a muslin bag used instead of the burlap sack now in use, the results would be more palatable. Scalding the milk would improve the flavor and lessen the possibility of serving cold coffee, which seems to be a general complaint.

†Note the requisition for 1,900 pounds of split peas!

It is deplorable that the serving of the food should of necessity be so primitive. Whether the primitive way the men act is a reaction to existing conditions or natural to this group, was not a matter for the consideration of the Committee, but it is to be hoped that in the new jail some more civilized and civilizing method of serving will be instituted.

The jail diet is based upon a budget of thirty-five thousand dollars per year, or approximately ninety-five dollars per day for 850 to 900 people, representing about eleven cents per day per capita. The typical meals for a day are as follow:

Breakfast.—Clear coffee and duffer (bread).

Dinner.—Beef stew, potatoes, a vegetable (carrots, turnips, or cabbage), and bread.

Supper.—Coffee and duffer, or soup and duffer.

Total food allowance for day	Carbohydrates	Protein	Fat
Bread, 1 lb.	254	43.2	9.6
Meat, ½ lb.	..	48	31.2
Potato, ½ lb.	32	3.2	..
Carrot or Cabbage or	7.2	1.2	..
Turnip, ¼ lb.			
Dry Peas, 1⅛ oz.	24.8	9.6	.4
Coffee	..	..	..
Total grams	317.0	105.2	41.2

Total calories 2,048

Theoretically, the carbohydrate and proteid are high for people not working. Fat low. In practice this amount of food is not eaten and is therefore insufficient.

A reasonable proportion of carbohydrate, proteid and fat for average person living in confinement, is approximately:

Carbohydrates	Proteid	Fat	Calories
250 grams	75 grams	100 grams	2,200 to 2,600

Breakfast—Typical		$27.90
Dinner:		
Hamburger with Onions 25 lbs. @ 2c	$22.50 .50	
Potatoes 300 lbs. @ $2 cwt.	6.00	
Bread—225 lbs.	7.00	
		36.00
Supper:		
Stewed fruit	$ 9.00	
Bread –250 lbs.	7.00	
Coffee, with milk and sugar	7.50	
Margarine 25 lbs.	5.00	
		28.50
		$92.40

Breakfast Typical		$27.50
Dinner:		
Salt Cod Fish—75 lbs. @ 10c	$ 7.50	
Milk gravy -		
40 gal. milk @ 18c	7.20	
5 lbs. oleomargarine @ 20c	1.00	
15 lbs. flour @ 3c	.45	
Potatoes—450 lbs.	9.00	
Bread -225 lbs.	7.00	
		32.35
Supper:		
Vegetable soup, made from stock from bones—		
Cabbage—25 lbs.	$ 0.75	
Carrots 25 lbs.	.50	
Onions—10 lbs.	.20	
Barley 20 lbs.	.60	
Flour—10 lbs.	.30	
Bread—225 lbs.	7.00	
Stewed fruit	9.00	
		18.35
		$77.20

Suggested Meal Changes

Breakfast.—Cereals—Oatmeal, oatmeal, and bran, cornmeal, rice.

Dinner.—Fish with macaroni and tomatoes—no potatoes. Bread. Serve vegetable soup for supper. Hash with beets or raw onions when cheap. Bread. Stew with turnips or carrots and potatoes. Bread. Cornbeef and cabbage with potatoes and bread. Baked beans with ham butts. Potato and sausage loaf; 2 parts raw potatoes, 1 part sausage and gravy.

Supper.—Stewed fruit, prunes, apricots, peaches, dried apple sauce. Vegetable soup. Potato soup with salt pork; bean or pea soup, with bacon ends or salt pork. Bread.

All of the above changes on a *per capita* basis not exceeding the present cost.

For a fifteen cent per capita add to the above: A meat substitute for supper, i.e., rice and tomatoes and cheese. Potatoes with bacon.

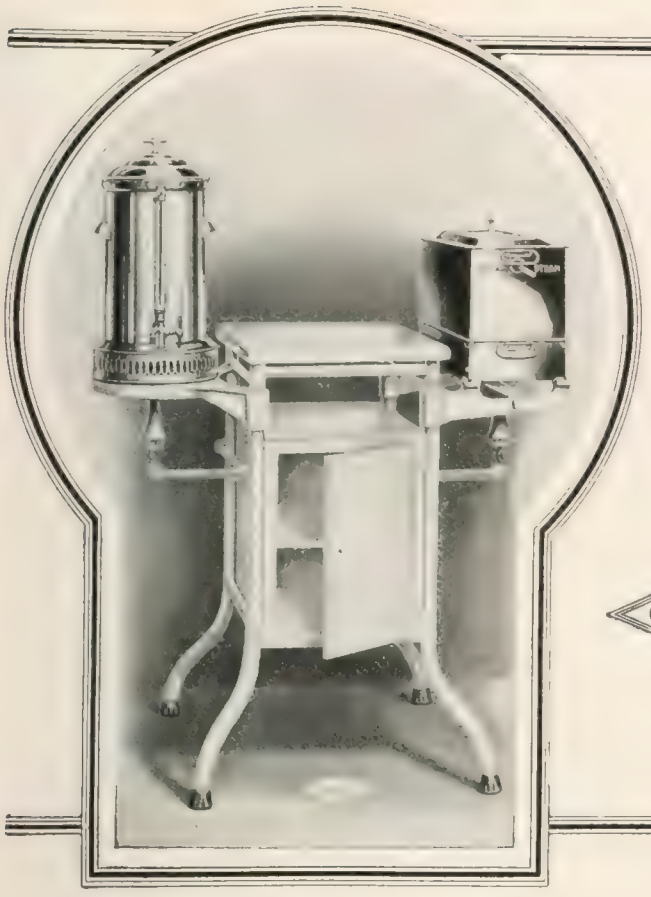
Fresh fruit for breakfast, occasionally. More milk, and more fat.

For a 20 cent per capita: Add milk, eggs, fat and sugar in the form of simple puddings.

THE WAGES OF GOLF IS HEALTH.

Suggested Meals

	Portion	Carbohydrates	Proteid	Fats	Total Calories
BREAKFAST					
Oatmeal—80 lbs. @ $2.50 cwt.	$ 2.00 6-8 oz.	30	7.2	1.1	
Milk—30 gal. @ 18c gal.	5.40 4 oz.	6	3.6	4.8	
Sugar 20 lbs. @ 5c lb.	1.00 2 tsp.	24	..	..	
Coffee (90 gal.)—125 lbs. @ 16c lb.	4.70 1 pt.	..	..	..	
Milk (hot) 10 gal. @ 18c gal.	1.80 2 tbs.	2.4	1.4	1.7	
Sugar 20 lbs. @ 5c lb.	1.00 2 tsp.	..	..	..	
Bread 25 lbs. @ 3c+ lb.	7.00 ¼ lb.	31.8	5.4	..	
Margarine 25 lbs. @ 20c lb.	5.00 ½ oz.	..	..	12.7	
	$27.90	94.2	17.6	20.3	629.9
DINNER					
Chuck beef 300 lbs. @ $6 cwt.	$18.00 ¼ lb.	..	30	18.0	
Potatoes 450 lbs. @ $2 cwt.	9.00 ⅛ lb.	32	3.2	..	
Carrots 300 lbs. @ $1 cwt.	3.00 ¼ lb.	7.2	1.2	..	
Bread—250 lbs. @ 3c lb.	7.00 ¼ lb.	31.8	5.4	..	
	$37.00	71.0	39.8	18.0	605.2
SUPPER					
Prunes 100 lbs. @ $9 cwt.	$ 9.00 8-10 pr.	33.4	1.2	..	
Bread 225 lbs. @ 3c lb.	7.00 ¼ lb.	31.8	5.4	..	
Margarine—25 lbs. @ 20c lb.	5.00 ½ oz.	..	..	12.7	
Coffee 25 lbs. @ 16c lb.	4.70 1 pt.	..	..	..	
Sugar—20 lbs. @ 5c lb.	1.00 2 tsp.	12	..	..	
Milk—10 gal. @ 18c gal.	1.80 2 tbsp.	2.4	1.4	1.7	
	$28.50	79.6	8.0	14.4	480
Grand total	$92.40	244.8	65.4	52.7	1715



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It is the Castle No. 1512. Dressings are sterilized by "live" steam, instruments by boiling. The table top is heat and acid proof, and beneath is an aseptic cabinet for supplies. Illustration shows gas heat, but made also for other heats. Electric unit never can boil dry.

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Permits the Intravenous Injection of a Hemotonic of Established Therapeutic Value.

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Abstracts and references from American and foreign Journals.

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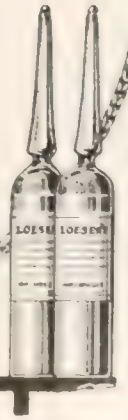


Virginia Child Labor Law

A new child labor law was passed by the Virginia legislature, the provisions of which apply to work in, about, or in connection with any gainful occupation except work on farms and in orchards and gardens. The minimum age is fourteen; the maximum hours are eight per day, forty-four per week and six days per week; work between 6 p.m. and 7 a.m. is prohibited; employment certificates, issued by local school officials, instead of by any notary public as heretofore, are required for employment of children between fourteen and sixteen. The requirements for the issuance of these certificates are: (1) a promise of employment; (2) proof of age; (3) a certificate of physical fitness signed by a public-health or school physician.

The Drug Menace and Its Serpentine Trail

Trade methods of scientific salesmanship mark the practices of illicit opium sellers who give out "samples" to youngsters at school. They soon become regular customers, according to Sara Graham Mulhall in *Current Opinion*. Recruits are thus secured to the great army of regular buyers of habit-forming drugs. The Opium Ring's minions serve perhaps two million users, and the number is increasing so rapidly and by such insidious means that there is no way to get an authoritative, up-to-the-minute census.

Imported for legitimate use in the United States, in 1909, was 470,000 pounds; in 1919 the amount had increased to 730,000 pounds, enough to supply thirty-six doses to every man, woman, and child in the Nation. If the increase was proportional in 1920 and 1921, the opium imported into this country is appalling, enough to poison the brains and corrupt the morals of the Nation, for 90 per cent of the opium imported into this country is used by addicts.

As shown by the latest available figures the United States is the greatest opium importing and exporting nation in the world: Austria imports 4,000 pounds; Italy, 6,000; Germany, 17,000; Portugal, 2,000; France, 17,000; Holland, 3,000; as against 470,000 pounds for America! New York leads with its thirty-five thousand recorded narcotic addicts. Tennessee follows next, then Missouri, Virginia, Michigan, Illinois, Georgia, Oklahoma, Massachusetts, and so on in order of drug addicts reported, irrespective of population.

A survey of the Nation shows that most of the addicts to heroin are girls and boys under the age of twenty. The cocain habit is also fastened upon youth to a greater extent than upon adults. Careful government inspection has shown that the greater part of the drug victims are women and girls, though in some sections the proportion is about equal for the sexes.

Economically, the country loses some two hundred million dollars a year in service from the men and women incapacitated by the drug habit, while the addicts themselves pay approximately one hundred million dollars a year for their "dope," not to mention the billion dollars spent for cure and upkeep of those deplorable citizens who become a public charge upon the tax payer.

The drug addict is a national menace. The Nation should control its source of supply, put its heel on the illicit trafficker, and check this undermining curse, says Miss Mulhall.

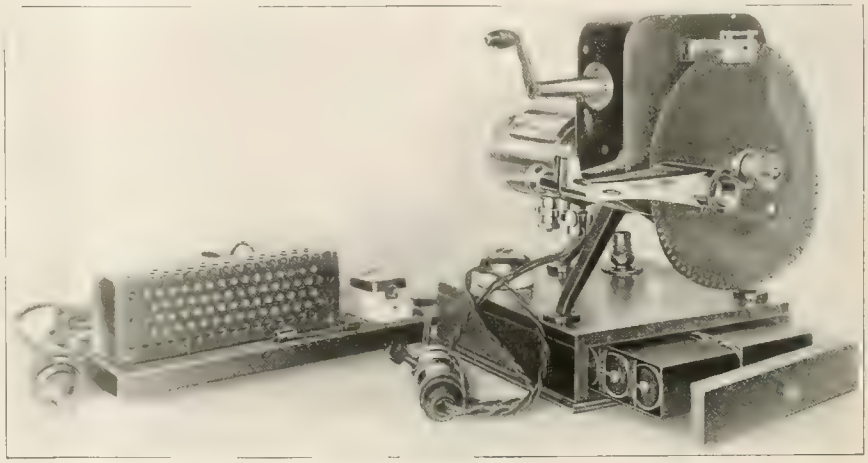
Education and the Films

THAT the motion picture is a distinct contribution to visual instruction is the statement of Will H. Hays, President of the Motion Picture Producers and Distributors of America. In 1920 a number of tests were made to prove the efficacy of the motion picture as an aid to acquiring knowledge. Some of these were conducted by Professor J. W. Sheppard of the University of Oklahoma in one of the high schools of Madison, Wis. Abstract and concrete subjects were taught to one group of students by means of film only, to a second group by a superior instructor, and to a third group by an average instructor. The film scored an average of 74.5 per cent, the superior teacher an average of 66.9 per cent and the average teacher 61.3 per cent. In other words, the film outstripped the best teacher by 6.6 per cent and the average by 12.14 per cent.

"A cablegram from Paris a short time ago told how a class of medical students at the Sorbonne University saw by motion pictures the complete details of a wonderful operation performed by the famous surgeon, Professor Jean Louis Faure. The film was run at a speed synchonizing exactly with the actual progress of the operation and as the details appeared upon the screen another surgeon described every movement made, from the first incision to the closing of the wound by the last stitch. In no way could so great a number of students have watched the life-saving workmanship of a master of his profession.

"In my opinion there will be a series of motion pictures adopted soon by boards of education just as now series of textbooks are adopted. They must be, of course, scientifically, psychologically and pedagogically sound."

A machine which will greatly facilitate the work of visual education in schools and in the home is a new flat disc motion picture projector recently perfected. The machine weighs less than eleven pounds, its disc being only 10½ inches in diameter. Each disc contains 1,300 pictures and is equivalent to 100 feet of ordinary standard motion picture film. By turning the projector in a vertical position pictures can be thrown on the ceiling, thus making the machine valuable to hospitals as well as to schools and homes.



New flat disc motion picture machine which will take motion pictures into the home, school and hospital. Electric batteries in its base supply current, if not available elsewhere, or the pictures can be viewed by daylight projection through the lens of the machine.

4 MONTHS' RESULTS

A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

GROUND GRIPPER
WALKING SHOES

She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.

"GROUND GRIPPERS" are the ORIGINAL muscle-developing health shoes for Men, Women and Children. They are universally recommended by physicians and surgeons. Instead of imprisoning arches and toes, they flex naturally with your feet in every part—at every step. Nerve pressure is relieved—stagnant circulation quickened—weak muscles strengthened—painful swellings reduced—deformed bones straightened. Feet are completely restored to normal shape, vigor and comfort. And these results are permanent.

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With the De Vry Portable Projector and Generator, motion pictures may be presented anywhere—in the mountains of Tennessee—the back woods of Canada—or in the heart of a modern city. The De Vry uses standard film, assuring a constant supply of literally thousands of reels of subjects available on all phases of health and hygiene. The De Vry is a sturdy, wear defying projector, light in weight, throwing a flickerless picture of theater quality anywhere, under the most adverse conditions. Mail the coupon below for a copy of our book, "One Hundred and One Uses of the De Vry."

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FROM THE FIELD

The American Occupational Therapy Association will hold its annual meeting at Atlantic City September 25 to 29 inclusive. Among the speakers will be Dr. Frederic Brush, Miss Susan Drew, Miss Winifred Brainerd, Presbyterian Hospital, Chicago, and Dr. H. W. Pollock. Round tables on crafts best suited for mental and nervous cases, for the tuberculous, for bed cases, and for the physically disabled will be conducted during the last session.

The American Chemical Society held its annual fall meeting September 4 to 9 at the Carnegie Institute of Technology, Pittsburgh. Thomas Midgley Jr. of the General Motors Research Corporation will deliver one of the important addresses on "Chemical Control of Gaseous Detonation with Particular Reference to the Internal Combustion Engine."

The American Hospital Association will hold its twenty-fourth annual conference in Atlantic City, September 25 to 28.

A course in the education of the blind will be conducted by the Graduate School of Education, Harvard University, in cooperation with the Massachusetts Department of Education and the Perkins Institution for the Blind. The first meeting will be held Friday, October 6, and on subsequent Fridays till January 26. Edward E. Allen, director of the Perkins Institution, will conduct the course. Charles B. Hayes, director of the division of the blind of the state department of education will assist. The course is designed to give in a short period a comprehensive survey of work with the blind and semi-sighted.

The Second Western Summer School of Community Leadership will be conducted at Leland Stanford, Jr., University, Palo Alto, Cal., September 18 to 23 with the joint cooperation of Stanford University, the League of California Municipalities, the California Association of Commercial Secretaries, and the American City Bureau. Dr. Ray Lyman Wilbur, president of the University, will deliver the lectures on public health.

Miss Bertha Steeves and Miss Stella Fuller are the first Delano Red Cross nurses to be appointed, the former to serve on the islands off the coast of Maine and the latter in Alaska. The Delano Red Cross nurses are supported by the bequest of Miss Delano who died at Savenay, France, in 1919 while National Director of the American Red Cross Nursing Service. The trust fund is to be supplemented by proceeds arising from the sale of her textbook "Home Hygiene and Care of the Sick." A term of acceptance of the appointment is agreement to serve three years. Miss Fuller has been until recently assistant director of the Red Cross Nursing Service in the Southern Division, Atlanta, Ga. Miss Steeves has been an instructor in hygiene in the University of California and has had experience at Henry Street settlement, New York, and in Pasadena, Cal.

The American Dietetic Association will hold its Fifth Annual Meeting in Washington, D. C., October 16-18 with headquarters at the New Willard Hotel. Among the speakers will be Dr. J. P. Watson, psychologist; Dr. Elliot P. Joslin of Boston; Miss Emma Gunther of Teachers' College, Columbia University; and Mrs. Mary D. Bryan, president of the Association. Trips to Walter Reed Hospital and the scientific laboratories of the Government will give excellent opportunities to observe research work being carried on in Washington.

The Annual Roll Call for registration of the Red Cross membership for 1923, will be held from Armistice Day, November 11, to Thanksgiving, November 30. Between those dates approximately 3,300 active chapters at home and abroad will carry on a systematic canvas for support of the peace time work of the nation's officially designated volunteer relief society during the ensuing year. Annual membership will remain $1. The American Red Cross now has a membership of approximately 4,500,000 adults. An innovation this year will be the uniform card-indexing of the millions of Red Cross members. The stub of each card, of a size handy for card case or pocket book, will be given to each new member enrolling. This will serve as a certificate of membership.

An industrial conference similar to the Safety Congress formerly held by the New York department of industry will be held in Buffalo, N. Y., November 22 and 23. Elimination of waste in industry will be the main theme. It is hoped that Governor Miller and Herbert C. Hoover, Secretary of Commerce, will open the conference.

The Pennsylvania Department of Labor and Industry has issued in pamphlet form safety standards of the industrial board for laundries. Safety stopping devices for machinery, adequate ventilation and floor drainage, and ample facilities for the personal protection of the handlers of soiled clothing are prescribed.

Arrangements have been made for a free course in laboratory technic for nurses who are graduates of recognized hospitals in the conjoint pathologic laboratories of Boston University and the Massachusetts Homeopathic Hospital. The course covers one year of actual time. Didactic and laboratory instruction similar to that given to medical students is provided in bacteriology and immunology, including Wassermann tests, hematology, urinary analysis, and preparation of tissues. An optional three months course in roentgenology can be arranged in addition, also free of charge.

After eight years of service with the National Tuberculosis Association, Dr. Charles J. Hatfield has resigned as managing director, resignation to take effect October 1, 1922, when he will be succeeded by Dr. Linsly R. Williams who is at present Director of the Commission for the Prevention of Tuberculosis in France of the Rockefeller Foundation.

Alfred D. Flinn, Secretary of the Engineering Foundation, is now on a tour of the west to interest engineers in a wide plan of industrial research, in which the Engineering Foundation, the National Research Council and the government department and the industries will link their efforts.

Framingham Monograph No. 9 deals with influenza, epidemic and post-epidemic observations. It is issued by the Framingham Community Health and Tuberculosis Demonstration of the National Tuberculosis Association.

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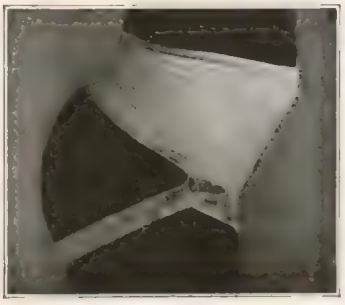

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The state offices under provisions of the Sheppard-Towner act have been established in the State Board of Health Building at Jacksonville, under Dr. William B. Keating, director of the State Child Welfare Bureau. Approximately $16,000 will be expended on the work during the next year. The state will be divided into subdistricts with a supervising nurse at the Jacksonville headquarters.

Kansas leads all the states in the union in longevity according to statistics from the Department of Commerce, the average length of life there being 60 years. Wisconsin ranks second in longevity, while Washington, D. C., with an average length of life of 53.83 for white males and 59.83 for white females leads the fourteen cities covered.

The Texas State Board of Health at Austin has for distribution motion picture films dealing with public health nursing, care of the teeth, bacteria, smallpox, diphtheria, the fly, milk pasteurization, the rat, typhoid, and the venereal diseases.

At a special meeting of the house of delegates of the New Hampshire State Medical Society in Concord June 29, it was voted to sponsor a movement for the organization in the state of a public health association composed of professional men and women and interested people for the purpose of promoting public health matters in New Hampshire. The new organization will work in full cooperation with the state board of health.

Detroit Health Department nurses, 133 in number gave 2,838 lectures to school children, explaining the principles of personal hygiene to 117,599 children; they gave 589 lectures to 8,479 mothers on prenatal care and baby health; they made over 200,000 visits to the home; they inspected 4,718 school rooms and examined 197,857 school children; they assisted physicians in 37,938 vaccinations.

Most of the 50,000 deaths in the Philippine Islands in the 1918-1919 epidemic occurred among unvaccinated children according to a report by Victor G. Heiser and Charles N. Leach in the *Journal* of the American Medical Association. Effective vaccination has been exceedingly lax in the Islands since 1909 and the deaths occurred largely among the unvaccinated natives.

The Eye Sight Conservation Council of America, Times Building, New York, is establishing a special mailing list of those who wish to receive material of service to lecturers and writers on the subject of conservation of vision. The Council is stressing the need of lectures before various clubs.

A contest designed to disclose the healthiest negro babies in Detroit was held Tuesday, August 1, in conjunction with the Detroit Urban League at their headquarters, 553 East Columbia Street. Babies were judged in three classes, those up to 6 months inclusive, from 7 to 12 months inclusive, and from 13 to 24 months inclusive.

The application of modern business principles to welfare agencies, and the increased returns on the funds contributed effected thereby, are described in a report made public by the U. S. Department of Labor through the Children's Bureau. This report, entitled "Office Administration for Organizations Supervising the Health of Mothers, Infants, and Children of Preschool Age," is the outgrowth of requests for advice which came to the Children's Bureau from organizations in various cities. It embodies the experience of members of the staff whose services were loaned for studies and consultations, and the results of a study of methods used by 200 nursing agencies in both large and small communities. Although the report is directed especially toward the needs of agencies supervising the health of mothers and young children, certain fundamental principles set forth are applicable to the conduct of any office in the social field.

"Child Health in Erie County, New York" consists of a report of a brief cooperative inquiry into conditions relating to child health and the agencies for dealing with them in the rural sections and villages of Erie County, N. Y., November-December, 1921. The study was made by representatives of the organizations which constitute the membership of the National Child Health Council. According to the introduction, the statements of fact and the recommendations are presented not as a report of a comprehensive survey but merely as a primary contribution toward the coordination of health work for children. They deal with conditions as found in Erie County and are not necessarily considered applicable elsewhere.

Beginning in May, 1922 the Department of Labor and Industry of the Commonwealth of Pennsylvania has issued a monthly bulletin, its expressed purpose being "to conserve, to standardize, and to present, in readable form, the current information that emanates from the Department of Labor and Industry." It is thought that the publication of a monthly bulletin will get this information forward so that it will be immediately effective, and hence be of much greater value than the publication of yearly reports.

The National Tuberculosis Association has arranged for the publication of fourteen health plays, and has prepared a 6-page leaflet describing twenty-six plays, including these, issued by the various health organizations. The plays have been prepared to suit different age groups from primary school grades to high school, and several are adapted for use by clubs or community groups. The Association has a new film designed to teach health habits to the child of the slums, entitled "The Kid Comes Through." It is also distributing a dental hygiene film in three reels, produced by Colgate and Company, which may be borrowed free of charge except for transportation.

The case of a window cleaner who was arrested and jailed because he failed to use in the course of his work the safety belt provided by the employer is reported in *The Industrial Bulletin* issued by the Industrial Commissioner of New York State, Albany. This is the first time an employee has been arrested and punished for failure to use a safety device. Criminal proceedings are likewise instituted against employers who fail to provide safety devices for their workers.

A satisfactory demonstration of the effectiveness of compulsory education and the Child Labor Act in Pennsylvania is evidenced by the report of the Bureau for May. Only 254 persons out of the 1967 registered for rehabilitation are under 21 years of age and not one of these is without some schooling. According to the figures submitted on the educational qualifications, it is shown that those who had the least amount of education before their injury are foreign born. Most of the foreign born rehabilitation cases were laborers, while most of the American born were skilled or semi-skilled.

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Roberts and Kelly on Fractures

It seems strange that in that field which was among the earliest explored the greatest progress should have occurred only within the last few years. The pathology of fractures was fairly well understood by the ancients. Since historic times the fundamentals of the treatment of fractures have been approximation of the fractured ends of the bone and immobilization to maintain this approximation. The fundamentals have remained, but numerous new details have been added, details of sufficient importance to change to a great extent the general course of treatment. As a result of the war, clinical material in enormous abundance was available and various methods of extension, maintenance of apposition, active and passive motion could be put to a practical test. It is therefore fitting that a book on fractures should be revised and knowledge gained during the war incorporated. John B. Roberts and James A. Kelley's "Treatise on Fractures in General, Industrial, and Military Practice" is a good book and we are glad to note that it is being kept up to date. The authors have revised and amplified this second edition so that it contains the advances in our knowledge of the treatment of fractures.

J. B. Lippincott Company, Philadelphia, 1921.

The Epidemiology of Tuberculosis

In "Epidemiology of Tuberculosis" Dr. George E. Bushnell aims to collect and discuss facts regarding epidemiological data which have been published in widely scattered and often more or less inaccessible periodicals and, the greater part of them, in foreign tongues concerning tuberculosis and its relation to the human race. In its first draft this volume was an essay on tuberculosis of the tropics and the Negro race. Dr. Bushnell has enlarged it to its present volume.

He considers the era before Koch's discovery of the tubercule bacilli and in a separate chapter the modern era of tuberculosis. He draws a distinction and discusses the races which have been tuberculized and those which he classes as non-tuberculized races.

He takes up the pathology and pathological anatomy, modes of infection, diagnosis, especially tuberculin diagnosis, and prophylaxis of the non-immunized individual. He then considers the treatment of tuberculosis in the tropics, tuberculosis as it affects the American Negro and the American Indian.

He closes this book with a chapter on some practical considerations and finally summarizes and concludes his opinions on the general subject. On the whole in this volume he makes a plea for accepting the inevitable tuberculization of the human race as brought on by modern civilization. There seems to be, in his opinion, no escape from this without more radical changes in our mode of life than can be reasonably anticipated. There is no reason for alarm in that the modern world is a tuberculosis world but probably the reverse. He believes that our aims should be to have the already large percentage of our children who are already immune to tuberculosis increased to 100 per cent. Better care of the infant and the inauguration of an intelligent instruction of the mothers is the best way in which so happy a state can be approximated.

This book is full of sound, sensible philosophy.

—J. B. Hawes, 2nd.

William Wood & Co., New York, 1921.

Joslin's Diabetic Manual

Joslin in the second edition of his "Diabetic Manual" explains in simple language the present conception of diabetes and the treatment for the disease. In his endeavor to make the subject plain to the patient nothing of scientific value is omitted and consequently the text is worthwhile for the physician. Pertinent facts are given to show the recent improvement in diabetic treatment. Scientific questions of import to the patient are asked and answered in such simple terms that any individual of ordinary intelligence can grasp the points. A chapter on diabetic arithmetic explains the computations involved in selecting dietaries of the proper proportion of the various food stuffs. Full discriptions are given of the diets for diabetics. Some explanation is made of the rôle played by carbohydrates and fats and the consequent necessity for controlling the intake of both these substances. Dietetic suggestions with definite recipes and menus are recorded. The information contained in this book is of value to any diabetic or any one interested in the disease. Certainly if the instructions laid down in this manual are carried out the diabetic can lessen his pitiful plight and prolong his life.

Lea & Febiger, Philadelphia, 1919.

Cunningham's Practical Anatomy, Volume 3

Cunningham's "Manual of Practical Anatomy," the third of the "two little green books," as most of us remember them from our freshman dissection days, has appeared, thus completing the new series of three. Volume 3 deals with the anatomy of the head and neck. The same improvements noted for Volumes 1 and 2 apply to Volume 3. The x-ray plates are a great help to the student in correlating the subject. The distinctive indented type for the instruction for dissection facilitates the use of the book as a dissecting manual. The reviewer, as was noted in the reviews of Volumes 1 and 2, is pleased to see the insertion of the B N A nomenclature along with the old terminology. This is the more exact of the two and its universal adoption is desirable.

William Wood & Co., New York, 1922.

Metabolism and Growth from Birth to Puberty

Francis G. Benedict and Fritz B. Talbott have been pioneers in the field of metabolism in children. It is partly due to them that general interest of the profession in metabolism has been aroused. Their monograph on "Metabolism and Growth from Birth to Puberty" will undoubtedly serve as a standard for all workers in the field.

Carnegie Institution, Washington, D. C.

Submucous Resection of the Nasal Septum

The student of rhinology will find a valuable contribution to his library in the small book by William Meddaugh Dunning on "Submucous Resection of the Nasal Septum." The treatment of the subject in such complete detail under a single cover will be welcomed by beginners in the specialty. Under separate chapters are discussed the anatomy, physiology, and surgical procedures which are indicative in ordinary and complicated deviations. The indications given for operative interference are thorough and conservative, and are followed by a regimen of sensible after treatment. There are numerous illustrations which are helpful from the didactic standpoint.

There is little to interest the practising specialist. The text describes the technic of the author, and conflicts at times with the methods of others performing successful resections.

The Surgery Publishing Company, 1921.

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Etiology and Pathology of Typhus

This handsome volume of 222 pages and 34 plates by S. B. Wolbach, John L. Todd, and F. W. Palfrey forms an impressive monument of the first phase of the history of the League of Red Cross Societies. This organization in response to the exigencies of post-war economy has now been transformed into a relatively small but effective organization for the coordination of the practical peace-time work of Red Cross societies, but during its first few years through the generous support of the American Red Cross it was able to undertake fundamental and important activities along the lines of original research. The most valuable of these studies was the trip of the typhus research commission to Poland in 1920-21. The results here presented by the distinguished group of investigators in charge mark a landmark in the history of the disease with which they deal. The work of daRocha-Lima and other previous investigators had made it highly probable that the causative organism in typhus fever was a Rickettsia but the careful pathological work of Dr. Wolbach and his colleagues has added by far the most substantial evidence available in support of this view. The demonstration of *Rickettsia prowazeki* in the louse and in human typhus and the distinction between this organism and other types of Rickettsia is highly convincing and the presence of *Rickettsia pediculi* in lice found upon a patient suffering from trench fever strongly suggests that the causative agent of this disease has also been discovered. The experiments conducted in Warsaw are admirably and clearly presented and the plates are of unusual beauty and clearness.

C.-E. A. WINSLOW.

Textbook of Embryology

The "Textbook of Embryology" by Frederick Randolph Bailey and Adam Marion Miller has reached its fourth edition in the twelve years since it first appeared. Meanwhile it has become one of the standard text books on the subject. The authors originally wrote the book for medical students and in each new edition have not only added enough new material to bring it up to the standard of recent knowledge but have also simplified the work so as to make it suitable for the student of medicine. In order to further interest in the subject the authors have added at the end of each chapter the most important references on the subject discussed, so as to give the student easy access to the literature. The illustrations in the book are exceptionally clear. The book deserves the popularity it enjoys.

William Wood & Co., New York, 1922.

The Vitamins

"The Vitamins" by H. C. Sherman presents a condensed account of recent vitamin studies and summarizes with sufficient detail all of the important work of the past ten years. The first chapter is an historical survey of the field; Chapters II to IV deal specifically with vitamine B, C, and A, respectively, setting forth all that is most important in our present knowledge of the three and bringing out the necessity of quantitative experimentation in vitamin researches.

The final chapter of the book makes a highly practical application of the nutritional characteristics of our different staple articles and types of food. A table is given which indicates the relative values of foods as sources of vitamins. Keeping in mind the economic questions involved in the average family dietary, he gives as a "rule of thumb" for insuring a dietary fairly balanced as regards mineral elements and vitamins, without detailed planning on the part of the housewife, the plan of budgeting the expenditures for food to see that at least as much is spent for vegetables and fruit as for meats and fish, and at least as much for milk in its various forms as for all forms of flesh food. Since this suggestion does not attempt to fix the relation between expenditures for these foods and for breadstuffs it is applicable at any level of expenditure for food. The authors suggest, however, that the facts have been learned from the standpoint of the wise utilization of food resources as a means of promoting the best nutrition of the people as a whole which should be put to work.

Accordingly, the chief groups of food are reviewed from this standpoint. They conclude with the statement that even with our present knowledge with reference to vitamins and other nutritional needs, "with a dietary selected to make the best use of our staple foods there will rarely if ever be occasion to purchase vitamines in any other form, or to give any greater anxiety to the vitamins than to some other factors that enter into our present conception of nutritive requirements and food values."

The Chemical Catalog Co., Inc., New York, 1922.

Complete Index to Keen's Surgery

Just as a ship is useless unless it has a rudder for guide so is a compilation of knowledge of little value without an index. The index to Keen's Surgery is the final touch in bringing this great work up to date. All eight volumes are carefully and fully covered.

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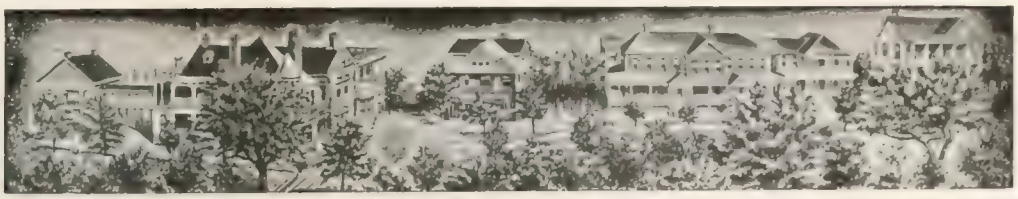

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It is to be recommended as a textbook for courses in colleges and high schools and as a handbook for health workers.

P. Blakiston's Son & Co., New York, 1921

The "Textbook of Histology"

The "Textbook of Histology," by Frederick R. Bailey has become a standard. Both the text and illustrations are very vivid. The Sixth Edition contains also a splendid chapter on the nervous system written by Dr. Oliver S. Strong. The references at the end of each chapter add considerably to the value of the book.

William Wood & Co., New York, 1920

Elements of Surgical Diagnosis

The fifth edition "Elements of Surgical Diagnosis" by Sir Alfred Pearce Gould and Eric Pearce Gould has been written since the world war and contains the advances made in surgical diagnosis during that time.

The reviewer has found the little book especially helpful in preparing his student clinics and lectures. The emphasis is laid on such diagnostic procedures as palpation and inspection rather than on laboratory tests. The author evidently feels as does the reviewer that the tendency at present is that the clinician is more apt to go to the laboratory to have a ready-made diagnosis, than use the laboratory simply as one of the many resources at his command.

Paul B. Hoeber, New York, 1920

Boyd's Cerebro-Spinal Fluid

It is interesting to note that within a period of two years two books have appeared on the subject of cerebrospinal fluid. The book by Boyd, "The Physiology and Pathology of the Cerebro-Spinal Fluid," unfortunately does not cover the subject completely. It leaves out many facts gained by the profession in the last few years. It pays little attention to the chemistry and physical chemistry of the fluid. The references are far from uniform. In some places the author gives the journal and the year in which the article is published and in other places the page and volume number. In spite of all this, the book is interesting in that an attempt is made by the author to give a review of the subject.

The Macmillan Company, New York, 1920.

Binnie's Regional Surgery

To quote from the preface of John Fairbairn Binnie's Treatise on Regional Surgery" the aim of the present work is to present short treatises on the injuries and diseases of the different regions of the body. Binnie has well accomplished this. The collaborators are men of reputation gained for a great part in the field in which they write. For example in volume 1, Charles Mayo writes the chapter on the thyroid, Sam Robinson on the surgery of the heart, pericardium and diaphragm, Chevalier Jackson on the removal of foreign bodies from trachia and bronchi, and Joseph Colt Bloodgood on the breast.

The text is well illustrated, the descripticns clear, and concise.

P. Blakiston's Sons, Philadelphia, 1922.

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Volume IV | Chicago, October 15, 1922 | Number 10

Eugenics in Relation to the Deaf

Curative Measures Have Advanced, But Can Not Keep Pace With Hereditary Deafmutism

BY EMIL AMBERG, M.D., F.A.C.S., DETROIT, MICH.

LET us consider that there are many people in this world who have never heard the word "Mamma," who never enjoyed the singing of the birds and the songs of man, the caressing voice of the mother, the music of a silver-tongued orator, the pleasing and uplifting melodies by a great artist, or the stirring strains of an orchestra. "*Viva voce*" (with a living voice) is a significant expression, for a part of the world is dead to the deaf. The prevention of the dire affliction of deafness has been the aim of physicians for a long time. Owing, however, to the fact that the organ of hearing is so very delicate, that it is hidden deep in the head, and, that the development of curative measures in ear diseases has to a great extent taken place only during the last few generations, it is little wonder that the important subject of eugenics and dysgenics of the hearing apparatus is of comparatively recent origin.

The efforts to prevent deafness after birth are not subject of this article. It is a great field which is receiving much attention at present, and is of the utmost importance. We may ask ourselves two questions: (1) Is there any reason for the assumption that heredity plays a part in deafness? (2) Can anything be done to avoid, or, to correct the influence of heredity?

Concerning the first question let us hear what some observers and authors say. A publication by the Volta Bureau in Washington entitled "Marriages of the Deaf in America," by Edward Allen Fay, Washington, D. C. 1898, is frequently quoted. Fay's investigations have been made the subject of a critical study by Alexander Graham Bell.

The alleviation of the condition of the deaf is a medical problem to the extent that the defect in a given case may be open to medical cure.

In all other aspects it is a social problem, for if a deaf-mute is ever to become a useful member of society it is only through far reaching social measures of welfare work and highly specialized education.

An indispensable part of any control of the situation is a study of the causation of deafness, and its logical remedy through eugenic measures.

Fred DeLand, superintendent of the Volta Bureau, in his introduction of the "Graphical Studies of Marriages of the Deaf" by Alexander Graham Bell, 1917, says that Dr. Bell followed up the good work started by Dr. Fay and found:

Marriages resulting in deaf offspring	300
Total number of children born	1,044
Number of deaf children	585
Proportion deaf	56 per cent

In other words, from these three hundred marriages that resulted in deaf offspring more than half of the children born were deaf.

Another development worthy of note is that of these 2,642 marriages analyzed the average number of children per marriage in the three hundred marriages that resulted in deaf offspring was 3.48, while an average of only 2.44 per marriage was reported in the 2,342 marriages resulting in no reported deaf offspring.

Alexander Graham Bell has also expressed himself as follows:

(1) A deaf person not born deaf, who has no deaf relatives, will probably not increase his liability to have deaf offspring by marrying a blood relative.

(2) A deaf person born deaf, who has no deaf relatives, will probably increase his liability to have deaf offspring by marrying a blood relative, especially if that relative should happen to be on the deaf side of the family; for example: If his father has deaf relatives and his mother has none, he will more likely to have a deaf offspring if he marries a relative of his father than if he marries a relative of his mother.

Speaking in general, Bell says, "As there are few families entirely free from constitutional defects of some kind, a prudent person would do well to avoid a consanguineous marriage

in any case, not necessarily on account of deafness but on account of the danger of weakening the constitution of the offspring."

Hammerschlag examined 237 pupils of an Israelitic deafmute institution. There were 168 marriages with one deafmute child; blood-related were twenty-four, or 14.3 per cent; twenty-eight marriages with each two deafmute children; blood-related were eight, 28.57 per cent; fourteen with three or more deafmute children; blood-related were eight, i.e., 57.14 per cent. "If therefore," Hammerschlag concludes, "the multiplicity of the occurrence is a criterion of hereditary deafmutism—and that is not doubted by any author—then the increase of the relation of marriages of deafmute parents related by blood found in these observations, furnishes a weighty proof that blood-relationship plays a part in the cause of congenital deafness."

H. Herzog, Innsbruck, very clearly distinguishes between inherited and congenital deafness. He calls heredity the repetition of parental qualities in children and children's children by virtue of a transmittable mass in the egg or sperm-cell. Therefore he speaks of hereditary deafmutism only if it stands in causative relation to the same defect in an ancestor. He adds that the expression "hereditary" might better be avoided because it is ambiguous, e.g., we speak of hereditary syphilis and designate thereby a disease acquired in the womb. The conception, continues Herzog, that otosclerosis can be attributed to an inherited cause, has found more and more adherents until Hammerschlag has proved it scientifically. The family trees which he and Koerner studied illustrate the transmission of the defect partly to the fourth generation.

Boenninghaus quotes Siebenmann, who attributes a large number of congenital (this is not hereditary) deafness to meningitis, or, perhaps, to a primary inflammation of the hearing nerve. We do not know whether these affections occur after birth, in the first year, or, whether they occur in the womb through placentary infection of the unborn as it is partly proved in typhoid fever, influenza, pneumonia, and mumps of the mother. A small percentage of cases of congenital deafness is caused by malformation of the inner ear.

Predisposing Causes

Boenninghaus claims that predisposition for the defective initial lay of the inner ear is caused particularly by marriage of blood relatives. Here it occurs frequently that several children are deafmutes. Also deafmutism of one or both parents is predisposing, yet, strange to say, the predisposition is not great, even if we consider that only a small portion of deafmute parents may possess a defective initial lay of the inner ear, which is transmittable. This strange phenomenon stands in sharp contrast to the experiments with breeding of congenitally deaf animals, Angora cats, Dalmatian dogs with white skin and blue eyes, and Japanese dancing mice. Yet, we must consider that these deaf animals are produced by breeding of deaf parents, probably through generations. The hereditability of abnormal initial lays must be exceptionally great under such circumstances. Predisposition is also caused by deafmutism in the sideline.

This picture is reproduced from an illustration contained in a booklet on "The Conservation of Hearing," by Eduard Scmalz, 1837. While it is old and somewhat diagrammatic, it gives an excellent idea of the location of the hearing organ, deep in the head and near the brain. The instrument, introduced through the nose, points out the Eustachian tube, which connects the throat with the ear, while the probe L is carried through the outer ear canal.

Koerner states that congenital deafness is caused either by an arrest of development of the labyrinth (aplasia), or by a congenital degenerative atrophy, i. e., wasting away of the acoustic nerve, or by a disease of the labyrinth occurring before birth. In the latter instance, we have as a rule a degeneration and metaplasia (change of one kind of tissue into another), of the endothelium in the endolymphatic space, i. e., of the lining of the space in which the delicate hearing organ proper is located. The labyrinthitis after birth affects children most frequently when they are from two to four years old.

Wittmaack in his book on otosclerosis says that the influence of heredity can be named also for the development of local changes. If the soil is prepared, general causes may be an auxiliary factor (syphilis, tuberculosis, infectious diseases, gout, extension of pneumatization.) Other characteristics
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acquire otosclerosis who are distinguished from the other members of the family by these irregularities.

S. MacCuen Smith says, in emphasizing the heredity factor, that he knew from personal observation of a certain family which for several generations back had presented the tendency to otosclerosis, that all the descendants who resembled in features or traits a certain paternal ancestor, uniformly had begun to lose hearing at an early age, of about seventeen or eighteen years, and nothing stopped the progress of this tendency, although the family were well off and neglected no means to prevent it.

Kerrison says, concerning heredity, that Hartmann (Berlin) reports two families in which the parents were congenital deafmutes, and that of five children born to them four were deafmutes. The parents who suffered from acquired deafmutism had children with normal hearing. Love (Scotland) reports three families with congenitally deaf parents. Among the children of these three families were five congenital deafmutes. Love mentions that among the Roman Catholics in Germany whose church prohibits intermarriage between near blood-relations, the proportion of deafmutes to the rest of the Catholic population is 1:3000, with Protestants, by whom intermarriages between cousins is not condemned, the proportion is 1:2000 while among the Jews who encourage intermarriage between blood-relations it is 1:400 (Hutchinson).

Dr. Hays of New York is of the opinion that hereditary deafness can be claimed only in those cases in which there is deafness among ancestors in direct line. One or two generations may have been skipped, but that one will find many cases of hereditary deafness which are directly traceable, that congenital deafness is a deafness which develops before the child is born and that it may be due to a true congenital defect or to syphilis in one or both parents.

Baratoux gives the following changes in the syphilitic newborn: purulent middle ear inflammation, thickening of the drummembrane and the latter melted to the inner ear (promontorium); in the inner ear: hyperemia (i. e., congestion), hemor-

rhage, collection of pus and breaking down of the organ of Corti. Hereditary syphilis of the labyrinth, according to Politzer, is often combined with adhesive processes in the middle ear.

We must also take into consideration that, just as facial traits are transmitted, so is the configuration of the inside of the nose and of the throat. Inasmuch as the nose and throat stand in direct relation to the ear it is only natural to assume that, in transmitting a disadvantageous anatomical condition, also the ear of the offspring may be influenced. The parents, teachers and the nurses must especially be on the lookout for children who show any abnormality which suggests the possibility that a nasal obstruction exists or that adenoids and diseased or hyperplastic tonsils are present. Proper adjustments of these conditions may counteract transmitted faults, to a greater or less extent.

In answering the question whether anything can be done for the hard of hearing, we readily see that eugenics plays a very important part, and the avoidance of the evil influences pointed out in the foregoing paragraphs suggests the remedy.

In conclusion I may add that it is understood by itself that everything medically possible must be done for the hard of hearing and for the deaf. Besides, when the hardness of hearing has reached such a degree that it interferes with the relation of the individual to society, lip-reading should be taken up. There exist excellent schools for the deaf in many places in the country. Adults can also obtain the benefit of such instruction in many places. It is especially recommended that deaf adults should join the societies for the hard of hearing, which exist in great numbers. Aside from the benefits accruing to the members concerning instruction and economical help, the social aspect is of incalculable assistance to the mind, replacing the feeling of loneliness and partial uselessness by the firm conviction, that also the deaf person fills a definite place in society, that there are occupations in which his or her services are preferable, and, that the opportunities for social enjoyment are by no means closed to the deaf.

Business Introduces Health

WE ARE not unaccustomed to child welfare and humanitarian groups throwing the searchlight of investigation on commercial enterprise and products. Popular interest in health is such that some business is under scrutiny most of the time, and surveys, studies, and reports flood the health worker' desk. Notably the dairy interests and dairy products have been the object of criticism and recommendation by such committees of investigation, but now the tables are turned and we see the spectacle of the dairy industry making a specific study of the health stations and sanitation methods for which bureaus of child hygiene are responsible. A Committee representing the London Dairies, Ltd., of London, England, is now on tour of the United States making this study preliminary to the adoption of pasteurization of milk in London; and they expect to aid in the broad extension of stations for the saving of countless children's lives in England.

It is not said whether this investigation is primarily concerned with the saving of lives or with finding a larger output for dairy products through health centers, child welfare agencies, and schools, nor does the motive weigh very much in the matter if in the end the children receive added rations of vitaminized and pasteurized milk.

American industry is not outdone in this matter, for we have in Health Week to be observed October 23 to 30 throughout the country an example of unparalleled health activity on the part of commercial groups. Representing, they say, the best of scientific achievement in health installations that promote better practices in personal hygiene, ventilation, and sanitation, they have not found that intelligent cooperation on the part of the buying and building public which means cleaner and better homes, newer and simpler means of ventilation, or anything like a general appreciation of the installations that save time and drudgery and thus afford more freedom and better energy for educational and recreational activities. Hence they propose during Health Week to unite all agencies in mass meetings for health, to line the thoroughfares with health displays, all carrying home the connection between daily practices and preventable disease. State and national health agencies will supervise the work to see that it is trustworthy.

Nor is this the first time that effective cooperation in health activity has been achieved by interested parties. The Metropolitan Life Insurance Company on its own initiative instituted perhaps the broadest program yet undertaken in industrial hygiene and health education of industrial groups, and the same company is responsible for our most extensive social research and our most searching analysis of vital statistics. The fact that the method of conservation put in practice by this company has effected a gain of about two hundred per cent on their investment in the work does not detract in the least from its value as a life saving enterprise and its importance as a health demonstration.

Speaking of the health activities of the Prudential Life Insurance Company recently, one of their officials asked: "Is it more creditable to pay a family ten thousand dollars on the life of the father, or to save a $100,000 life for the family?"

We are a commercial nation. The life of any productive member of society has a definite money value. Health as an asset appreciates as we count the cost of ill health. The inventions that have been devised to make possible our highly complex modern life are factors of health. Let us learn more about them and about health maintenance in general. The ethical dealer who studies his public succeeds to the degree in which he meets the vital needs of the people. Let the fact that health cannot be divorced from any of the manifold activities of life be the message of Health Week.

Nations Interchange Sanitary Staff

The first interchange of sanitary staff arranged by the League of Nations health committee will begin this month. This takes the form of a two weeks' course at Brussels for foreign public health officers followed by two months of first hand observation of the actual working of various public health systems. The twenty officials taking the course are drawn from the health services of Belgium, Bulgaria, Czecho-Slovakia, Italy, Poland, Soviet Russia and Ukraine, and the Serb-Crost-Slovene state.

At the fourth session of the health committee of the League of Nations it was decided in principle to send a small commission of inquiry to the Far East to study the prevalence of cholera and plague in ports.

Community Medicine in the American Colonies*

Midwives and Trading Vessel Surgeons Furnished Medical Aid to First Settler

By ELIZABETH C. TANDY, M.A., Committee on Dispensary Development of the United Hospital Fund, New York City.

RECORDS of the first attempts at colonization in America show that whole colonies were wiped out by Indian massacre and disease. What the Indian did not destroy, starvation and fever finished off. When the vessel which was the last visible link that tied the emigrants to their native land sailed away with the ship surgeon on board, the colonists were thrown upon their own resources. They had no professional assistance in caring for their individual or community health. If an epidemic struck them the Indian medicine man of the nearest tribe would be more likely to work charms against them than to help stay the ravages of the disease. In these disastrous experiments at colonization it is little wonder that sickness ran a close second to the scalping knife.

It is well to remember in considering the health protective measures of later colonial days that settlements were for the most part commercial enterprises, controlled and financed by commercial companies, whose primary interest lay in the speedy return of the original investment at a high rate of interest. The proprietary charters granted by royal prerogative to these trading companies charged them with no responsibility for the general health or well being of the loyal subjects who undertook their ventures. Emigrants of all kinds were thrown upon the mercy of the companies. Respectable people seeking religious liberty, freedom from debt, a chance to make a new start were given no safeguards against the exploitation of their physical reserves. Frequently, as in the Plymouth Colony, a group entered into the relationship of bound servant to a corporation intent only upon the amassing of wealth. Although colonizing schemes in Virginia had been repeatedly wrecked by sickness, lawmakers with characteristic irresponsibility ignored the whole problem. Colonists received no health protection from the crown or parliament.

It is to the everlasting glory of all the early trading companies that they made provision for the medical care of the pioneers who undertook their ventures. Before the Massachusetts Bay project was fairly launched in New England the question of a medical man to accompany the planters was discussed by the Company. At one of its earliest meetings held March 5, 1628, it is recorded that:[1]

A Proposicion beeinge made to Intertayne a surgeon for the plantacon, Mr. Pratt was propounded as an abell man up (on) their condicon Namely That 40 pound should bee allowed

The American colonists were dependent solely at first on barber-surgeons, midwives, and trading vessel physicians for medical care.

him, vizt for his Chist 25s, the Rest (for) his own sallery for the first yeere puided yt he (continue) 3 yeeres in the Comp to be at charge of transporting his wiffe and a ch(ild) haue 20' a yeere for the other 2 yeeres and to build him a ho(use t) the Comp. Charge and allott him 100 acr of ground, but if he stay but one yeere then the comp. to bee at charge of his bringing back to England and he to leaue his su(ant) and the Chist for the Comp. seruice.

Agreed with Robett Morley s(r)uant to Mr. Andrewe Mathewes late barber surgeon to seue the Comp. in Newe England for three y(ears), the first yeere to haue 20 nobles, the second yeere (30? and the third) yeere 20 markes, to serue as a barber and a surgeon on all occasyons belonging to his Calling to aney of this (Company) toiat are planters or their seruants, and for his (Chist and) all in it where of he hath guuen an Inuentory—sight of it bee approved ffyve pounds is—and payd to him forr it and the same to bee fo(rthwith payd).

The Dutch West India Company showed similar foresight for their colony at New Amsterdam. In the Charter of Privileges to Patroons adopted June 7/17, 1629, appears provision which was intended to encourage private individuals to establish settlements:[2]

The Patroons and Colonists shall in particular, and in the speediest manner, endeavor to find out ways and means whereby they may support a Minister and a Schoolmaster, that the service of God and zeal for religion may not grow cool and be neglected among them, and they shall for the first procure a Comforter for the Sick there.

Dr. Lawrence Bohune[3] who came to Virginia in 1610 with Lord Delaware and cared for the Colonists in the "starving time" was created first Phisition Generall of the London Company at a session of the General Court held December 13, 1621. He was allotted "500 acres of land and twenty Tenants to be placed thereupon att the companies charge." Diligent search has not shown whether Samuel Fuller bore any official relationship to the Plymouth Company. As he was a friend of William Bradford at Leyden, a signer of the Mayflower Compact, and a deacon in John Robinson's church, it is improbable that he was other than a fellow voyager, a seeker after religious liberty. Contemporary accounts of Colonial history show him going from town to town at the request of governors, caring for the sick stricken with epidemic small pox and scurvy.

The history of colonial medicine also presents very distinct community aspects. Medical men were few in provincial America. Many of the physicians and surgeons who came over preferred the society of their professional confréres in England and soon returned. Most of the early colonies were for considerable periods dependent upon the barber surgeons and physicians of the trading vessels that

*Author's note: These woodcuts furnished through the courtesy of the New York Public Library are by Dr. Alexander Anderson, "The Father of American Wood Engraving," 1775 1870). At the time of the yellow fever epidemic in 1795 he became resident physician at Bellevue hospital and later served as physician at the New York Dispensary at a salary of one thousand dollars a year. In 1796 he received the degree of Medical Doctor at Columbia College. These woodcuts represent the spirit and practice of medicine in provincial America. Art in the American colonies was very limited, and I am informed that I am exceedingly fortunate to get these illustrations. E. C. T.

1. Records of the Governor and of the Company of Massachusetts Bay in New England. Vol. 1, pp. 29-30

2. MacDonald's Select Documents, Vol. 1, p. 50.

3. Cyc. of Medical Biography, ed. H. A. Kelly, Vol. 1, pp. 13, 94.

Midwives were the sole dependence of the pioneer women in confinement. Not until after the middle of the eighteenth century was the practice of men in obstetrics regarded with favor.

visited the coast. It was customary for governors to attempt to secure medical attendance from more fortunate colonies whenever epidemic conditions arose. At a slightly later date we see neighboring communities making group contracts with medical men and offering them substantial inducements to settle in their part of the country. An instance which appears in the Town Records of Deerfield, Mass.,[4] shows the nature of the arrangements and the method of financing the institution:

Passed Mch. 27th, 1739.

Voted that Mr. John Catlin be appointed to go to Hatfield and meet the Committees of Northampton, Hadley, and Hatfield and there in behalf of this Town to act and determine what to give Dr. Potter for his encouragement to settle as a bone setter in this part of the country; that is to say whether to give him fourteen pounds or what part soever there of shall be by him accounted to be our proportion with ye rest of the towns, considering ye circumstances of ye town with regard to their distance from him; and what he shall agree for the town will and do hereby order to be raised for him in a rate on the town, to be raised according as ye Law directs for ye raising of Town Taxes.

Early in the history of New Netherlands we find special arrangements made with regard to midwives. Lisbert Ducken was the town midwife of New Amsterdam in 1638. A house was built for her at the public expense by the direction of Governor Van Twiller. "In 1644 Tryntje Jones, the mother of Annitje Jasz, was the midwife of the town. She died in 1646 and the daughter had some difficulty in collecting from the Dutch West India Company certain monies due for the mother's services. In 1655 Hellezord Joris was appointed midwife to the town, and in 1660 Council voted her a salary of one hundred guilders a year for attending the poor."

The following quaint epitaph[6] found in the Phipps Street burying ground at Charlestown would seem to indicate that midwifery had somewhat similar community aspects in Massachusetts.

Here lyes Interred ye Body of Mrs. Elizabeth Phillips, Wife to Mr. Eleaser Phillips, who was born in Westminster in Great Britain and commissioned by John Lord Bishop of London in ye Year 1718 to ye Office of a Midwife; and came to this country in ye year 1719 and by ye blessing of God, has Brought in this world above 3000 children. Died May 6th, 1761. Aged 76 yrs.

In the Plymouth Records[7] another evidence is found:

On the 2d of January, 1710 there was a Meeting of the women of the Town Warned by the Authorities to make Choyce of som of sd women of sd town for Midwives and after they had given in their votes the lot fell to those following (viz)

Lidish Rider
Judith Ffaunce
Susanne Coole
and Anna Stirlevant.

These early midwives were the sole dependence of the pioneer women in confinement. It was well after the middle of the eighteenth century before the practice of men in obstetrics was regarded otherwise than with popular disfavor. The first record of a man officiating in the capacity of an obstetrician of which we have information is to be found in the death notice on July 22, 1745, of Dr. John Dupuy of New York City:

Last night, died in the prime of life to the almost universal regret and sorrow of this city, Mr. John Dupuy, M.D., a man midwife, in which last

5. Packard's History of Medicine in the United States, p. 60.

The barber-surgeon also acted as tooth carpenter.

Most ministers had a little training in medicine. The ministerial physician the "angelic conjunction" of Cotten Mather, flourished in New England.

character it may be truly said as David did of Goliath's sword, there is none like him.

South Carolina[9] had trained obstetrical service dating from the year 1733. Dr. James Loyd[10] was the first systematic practitioner of midwifery in Massachusetts. He settled in Boston in 1754. Two years later Dr. William Shippen, another scientifically trained accoucheur settled in Philadelphia. These were the American pioneers in that branch of medical science which has latterly been recognized of primary importance. Untrained midwives reigned almost supreme in the realm of colonial obstetrics. It was only at the very end of the period that their authority was challenged.

The ministerial physician, or the "angelic conjunction" of Cotten Mather, flourished in New England. It was customary for most ministers to have a little training in medicine and their habit of visiting the sick as religious advisers gave them ample opportunity for the observation of symptoms. Regular practitioners were occasional in New England, but more frequent in New York. Most of the scientifically trained physicians of the American Colonies had attended the universities of Holland and were acquainted with the best knowledge of the period. Well trained men, however, were few. The greater number of colonial practitioners received their training by apprenticeship. Great need of medical care, scarcity of physicians, and lack of facilities for instruction gave the natural opportunity for the development of a class of charlatans. Throughout the colonies quackery flourished with little let or hindrance. Most of the colonies passed laws which attempted to regulate medical practice and prohibit extortion. The conditions of colonial

4. Sheldon, George. History of Deerfield, Mass. Vol 1, pp 579-580
5. Bosworth, F. H. The Doctor in Old New York, pp. 285-286
6. Green, S. A. Centennial Address before Massachusetts Medical Society, p. 18.
7. Plymouth Records, Vol. 2, p. 158.

9. Eneve, Am. Medical [illegible] Vol. 1 [illegible] Inoculation, 1.
10. Beck, J. B. [illegible] in the American Colonies [illegible]

life, however, minimized the beneficial effects and the negative alternative of discouragement to invention and experimentation was the primary result of this regulation.

Some women midwives seem to have belonged to the group of colonial medical practitioners. The first person executed for witchcraft in Massachusetts was Margaret Jones, "physisian and doctress." Among the evidence of her guilt recorded by John Winthrop[11] we find that, "she practicing physic and her medicines being such things as (by her own confession) were harmless as aniseed, liquors, etc. yet had extraordinary violent effects. She would used to tell such as would not take her physic that they would never be healed and accordingly their disease and hurts continued with relapse against ordinary course and beyond the apprehension of all physicians and surgeons." Jane Hawkins[12] who delivered Mary Dyer of her monstrosity was likewise a well-known midwife and physician. In the session of the Massachusetts General Court March 12, 1637-1638 this record appears: "Jane Hawkins the wife of Richard Hawkins had liberty till the beginning of the third mo called May, and the Magistrates (if she did not depart before) to dispose of her and in the meantime She is not to meddle in surgery, or physick drinks, plaisters or oyles; nor to question matters of religion, except with the elders for satisfaction."

Just after the middle of the eighteenth century opportunity for medical instruction began to develop in America. The medical college of Philadelphia was established in 1765, Kings College in 1768, and Harvard Medical College in 1783. People could now get scientific medical training without spending several years in Leyden or London.

With the establishment of medical schools in the colonies and the multiplication in the numbers of well trained private physicians the community aspects of medicine took a less important place. Settlements grew from compact little villages to groups of fair sized separate communities able to support independent practitioners. Legislation regarding the medical profession came to be restrictive rather than promotive. Official disputation over colonial health matters was to be centered about the wrangles between the crown and the General Assemblies concerning provincial legislative authority for the regulation of local quarantine and nuisances.

In the question of medical care as in the other provisions for colonial welfare it is evident that the early colonists had for a time the spirit of community provision. As the size of their settlements increased and the struggle for legislative power grew they lost sight of community in approaching democracy. It is interesting to see that as our ideas of democracy change we are getting back to community spirit, particularly in provision for public health.

11. John Winthrop's Journal, Vol. 2, p. 344.
12. Records of the Governor and the Colony of Mass. Bay in New England, Vol. 1, p. 224.

Army Water Purification Unit

THE purpose of the Army Water Purification Unit is to furnish an adequate supply of potable water at convenient points for the use of troops in the field. This requires a mobile unit of considerable capacity, yet one capable of meeting the modern high standards for potable water. The entire equipment of this unit is mounted on a standard Army 3½-ton Liberty Truck, and consists essentially of a single centrifugal pump rated at 100 gallons per minute against a 75-foot head, directly driven by a 4 cylinder gasoline engine, operating at 1150 revolutions per minute; a 42-inch, pressure, mechanical filter with a hand agitator; a five-way control valve; a combination direct dry feed and solution feed chlorinator with a capacity of .1 to 12 lbs. chlorine per 24 hours; an alum pot and a soda ash tank with appropriate feeds; a venturi meter and a simple laboratory for making acidity, alkalinity, color, turbidity and free chlorine tests.

The unit may be operated as a simple pump unit, as a pumping and chlorinating unit, or as a pumping and filtering unit with or without chlorination. A five-way valve is provided as a convenient means of control. The valve may be set to normal filtering, to discharge to waste, to wash the filter, or to by-pass the filter. The alum pot supplies the alum to form the coagulant layer in the filter, and in case the water does not have sufficient natural alkalinity the soda ash tank contains a 3 per cent solution of soda ash which may be added to it. The chlorine is carried in tanks as a liquid under pressure and may be fed directly as a gas or as a solution feed with a Wallace & Tiernan Company Army type pulsating meter. The chlorine, alum, and soda ash are all added to the suction line to facilitate thorough mixing and to give a maximum time for the chemical reactions. Gauges and meters are provided to show the pressure and volume of the water.

This unit has been subjected to numerous road and field tests. Its mobility is the same as any loaded 3½-ton truck, and no material trouble has ever developed with the apparatus during the road tests. Field tests have shown that it has a normal capacity of about 4,000 gallons per hour and that it will deliver a clear, sterile, potable water from a turbid stream that is grossly contaminated with bacteria.

It will furnish enough potable water every hour to last one thousand soldiers one day.

An equipment devised to furnish potable water to troops in the field.

Some Recent Advances in Sanitary Science*

Engineers Have Opportunity for Public Service in Sanitation

By GEORGE C. WHIPPLE, Professor of Sanitary Engineering, Harvard University, Cambridge, Mass.

THE word "sanitation" has to do with the environmental side of health and connotes the idea of cleanliness. Clean air, clean water, clean food, clean clothing, clean houses, clean streets, clean rivers, clean soil,—all these and more are comprised within the compass of this word sanitation. From the public health point of view sanitation is limited to matters which affect a considerable number of people and which are usually undertaken by governments or are regulated by governments under the police power. These come within the field of the sanitary engineer.

There have been no sudden or spectacular advances in the science of sanitation during recent years. Some new ideas have come to the front, but for the most part they are of minor importance. Sanitary engineers appear to be especially interested just now in studying the results of operation of existing works with a view to making improvements in many matters which affect cost and efficiency. High prices and unsettled business conditions have caused a lull in construction. While a period of inactivity and retrenchment is never welcome, it gives everyone a chance to study and practice economy,—a process by no means unhealthful to the good of the cause.

Public health activities are based partly on science and partly on law, and the best results come from a proper blending of the postulates of both. This is a scientific age. The aeroplane and all sorts of wireless devices become accomplished facts while men were yet dazzled with amazement. But it is also a land governed by law, and laws are of slow growth. Sometimes the present efforts to combine science with law seem like putting new wine into old bottles. Occasionally the bottles burst and new laws or new interpretations of laws result. Often, however, the established legal principles hold fast, and it is a good thing for all concerned that they do. The United States Supreme Court has recently handed down a decision that the Child Labor Law is unconstitutional, because it conflicts with the Tenth Amendment of the Constitution. The amelioration of the hardships of child labor is without doubt desirable and necessary, but the maintenance of the integrity of the Constitution, the great bulwark of our liberty, is far more important to the country. The Attorney General of Massachusetts has said that in his opinion the Sheppard-Towner bill is also unconstitutional, and steps are to be taken to bring this to decision The Court of Appeals of Kentucky has decided that under the statutes the State Board of Health can forbid the furnishing by a company of impure water to a community, but can not direct the use of any particular method of purification. There are limits to a state's use of the police power. This power is properly employed to protect the people against injury but not to procure benefit, even though the benefit be for the public health,—a distinction often hard to make, but one of much importance. Dean Wigmore of the Northwestern Law School recently said, "Law and science need to become better acquainted," and from the examples cited it is evident that this includes sanitary science. It is gratifying, however, to find that the general principles of our common law, statute law, and constitutional law prove adequate in the long run to bring to pass the really important sanitary reforms.

Service is always sacrifice. Our country never lacks for patriotic service in time of war. Young men should do as much for their country in peace time as they would do in war time. No one can do more to influence our best young men to take up public health as a life career than men who are already in it.

Is there not a joy in seeing death rates go down; in seeing preventable diseases disappear; in seeing streets cleaner and houses better in seeing cheeks rosier, muscles firmer, and backs straighter? Is there not a satisfaction, greater than that which comes from large money earnings, in feeling that one has had his little part in making the world a better place in which to live? And if this is so, why not tell it to the young men?

Similarly, it may be said that sanitary science and business,—or economics—need to become better acquainted. Once health officials said that "no expenditure of money for public health can be too great if a single human life is saved." The war gave a new conception of the value of physical life. In such a period as this when laborers lack work and when families go unfed, unclothed, and unsheltered, it is necessary to scrutinize carefully every dollar spent for health protection and for every other purpose. When it comes to a choice between more sanitation or more food, between more health education or more shelter, it is necessary to consider which is farthest below normal and which needs the dollar most. Even if it should be necessary to sacrifice temporarily something of public health, something of sanitation in order to maintain sound principles of government and justice, men should be willing to make the sacrifice, knowing that sound government and sound economics are just as important to the health and well being of the people as many of the public health activities of today. As a matter of fact, the three things go together and must not be considered apart,—sanitary science, law, and economics. These periods which compel governmental introspection, careful investigation of results, and perhaps retrenchment in appropriations can therefore be made of the greatest benefit to the cause of public health if they are used properly.

The early water purification plants were built according to ideas which developed from experiment. Filters have now been in use for ten, twenty, and thirty years, so that from now on engineers can base their designs on experience, a more trustworthy guide than experiment. The

*Read at a meeting of the New York State Sanitary Officers, Saratoga Springs, N. Y., June 27, 1922.

success of water filtration in protecting communities against water-borne disease and furnishing a clean, wholesome water has been fully demonstrated. The cost of filtration has proved to be not excessive. The public does not object to paying for purity in its water supply. People are coming to believe, what the sanitary engineers told them many years ago, that all surface waters should be filtered. Even in conservative Massachusetts, where storage and the prevention of pollution have been relied upon to protect the water supplies, a joint board consisting of the State Department of Public Health and the Metropolitan District Commission recently said in a report on the water supply needs and resources of the commonwealth, "Natural safeguards have their limits. As time goes on, as the populations on the watersheds increase, it will be necessary to adopt a policy of filtering surface water supplies."

Water Purification

A dozen years ago the method of disinfecting waters by chlorination came suddenly to the front. It has been adopted extensively, not only in scores of small cities but by the largest cities of the country. Unquestionably it has made a place for itself and demonstrated its usefulness. Its limitations are also being learned by experience. At one time it was said by some that the use of chlorine would make it possible to build filters more cheaply, using them merely as physical strainers and depending upon chlorination for bacterial purity. This false idea is being gradually cast aside. Chlorination cannot take the place of adequate filtration. It is false economy to slight the filtration process, because filtration with its accessory processes does more than remove bacteria; its function is to clarify a dirty water, decolorized a stained water, and remove tastes and odors from waters afflicted by them. Chlorination should be regarded as one of the processes accessory to filtration and used when necessary, just as aeration, coagulation, sedimentation, and other processes are used. Chlorination is also useful in emergencies.

When filters were first built emphasis was laid on bacterial removal and rightly so. But today water-borne diseases are well under control and the emphasis is shifting from bacteriology back to chemistry, although the problems of B. coli and B. welchii remain to be solved. Two problems are now receiving much attention,—tastes and odors, and the corrosion of pipes. Some tastes and odors are due to growths of algae and other microscopic organisms. Sanitarians have learned that these can be controlled by filtration, by the use of copper sulphate, and by the use of liquid chlorin in slight excess. The recent growth of Synura in the water supply of New York City led to an investigation in the use of the excess chlorin method which contributed an important idea on this subject. But tastes and odors are sometimes due to other causes, to oils, to various mineral substances discharged into lakes and streams by manufacturing establishments. The use of chlorin may emphasize these tastes, and such expressions as the "iodoform taste" are becoming common. Chlorin itself may give an odor, but the secondary odors, due to the action of chlorin on other substances, organic, or inorganic, are more common. There are also odors of decomposition, and sometimes it is hard to distinguish these from the "chemical odors." Experience seems to indicate that slow sand filters are more efficacious in removing odors than mechanical filters. The longer contact with the biological slime found on the finer sand grains of slow sand filters appears to remove the odoriferous substances better than the short contact with the chemically formed film on the coarser sand grains of mechanical filters. Corroboration of this is found in the fact that the reduction of free ammonia by slow sand filters is greater than by mechanical filters.

From a purely scientific standpoint interest in water filtration is now centered around the phenomena of coagulation. The old and simple idea that when aluminum sulphate was added to water it was all changed to hydrate and removed by filtration appears to be unsound. Aluminum does go through filters and the corrosiveness of the filtered water and even the bacteriological efficiency of the filter are affected thereby. Waters differ greatly in their action upon alum, and the newer methods of physical chemistry, such as the determination of the hydrogen ion concentration and the study of colloids, are being employed to give, if possible, an answer to the many problems involved. The torch of research has been temporarily handed over by the bacteriologist to the sanitary chemist and in his hands it is now burning brightly.

Since 1914 the United States Treasury Standard for the quality for drinking water used by travellers on interstate carriers has been employed. In spite of its frequent misuse its influence has been for good. It clearly needs revision, however, to adapt it to more general use, and recently the United States Public Health Service appointed a committee to consider the matter. This investigation, only just begun, will last for perhaps two years. It is an advance in the subject which warrants attention, as the whole subject of water analysis is involved.

On the whole, it may be said that the art of water purification is in a healthful state of mature growth, with vigorous strivings toward perfection.

Sewage Disposal

The latest development in the field of sewage treatment is the activated sludge process, a process of intensified biological action brought about by blowing compressed air into a tank of sewage after a part of the sludge previously separated from an earlier sewage flow has been added to it. It is a sort of hydraulic filtration. In intermittent sand filtration the sewage is brought in contact with sludge which has settled on and in the sand bed; in hydraulic filtration the sludge is blown or stirred through the sewage, and the same contact secured. Air is necessary in both cases. There seems to be no doubt as to the biological character of the process of purification, and organisms higher than bacteria are involved in both processes. The biological success of this process has been demonstrated, although the oil and trade wastes found in sewage sometimes injure the results. The problem of disposing of the vast quantities of the very liquid sludge produced by this process is still unsolved. If the sanguine hopes of those who think the sludge can be used profitably as a fertilizer are realized, the process will revolutionize present methods; if the same old difficulties of degreasing and dewatering the sludge cannot be solved so as to be a commercial success, the new process will take its place merely as one more method of disposal useful under certain conditions. Fortunately, the whole subject is under active investigation by sanitary engineers and soon there will be quite a number of full sized plants in operation, whereas at present there are only a few.

The subject of stream pollution does not appear to be getting the attention which it deserves. During the war governmental authorities relaxed

somewhat the severity of their control and, as a result, many streams are getting worse. Pollution control is always difficult to administer. It is a matter which does not necessarily affect health and therefore ought not to be exclusively controlled by health authorities. This, coupled with the fact that many stream pollution problems are of an interstate character, makes the problem of administration difficult. It certainly needs thoughtful study by a federal commission of some kind composed of men who represent manufacturing, law, engineering, fisheries, and health.

One fact which will have to be reckoned with in the future is the increase in the use of oil. Sewage contains more mineral oil than it did before the days of the automobile and the oil burning engine. Streams and harbors are more subject to oil pollution than formerly. In some places, especially along the Atlantic seaboard, this matter has been serious enough to warrant its being brought to the attention of congress.

There are many unsolved scientific problems in stream pollution, both biological and chemical. It must be admitted with regret and even with chagrin that the protection of streams against pollution has made no recent advance.

There have been no important advances in refuse disposal during recent years either in the art or administration. Perhaps the most notable event has been the publication of an excellent book on the subject by Messrs. Hering and Greeley. If there is any branch of sanitation in need of a thorough-going scientific investigation it is this one. Unfortunately, it is a subject which does not lend itself to small scale experiment. Studies to be of value must be made on a plant of considerable size and continued long enough to cover changing seasonal conditions. Some day these necessary experiments will be made. The federal government could well afford to pay for such studies even should the cost run up to a quarter or a half a million dollars, because the problem is one of importance in all cities and involves the conservation of substances which have a high money value, notably food, fertilizer, and grease, and because faulty methods of refuse collection and disposal affect the health and comfort of the people. Refuse disposal is one of these elements of municipal administration which emphatically needs a proper blending of sanitary science, law, and economics

Mosquito control has had its ups and downs in recent years, but on the whole, notable progress has been made in the application of simple principles which are becoming widely recognized. A few new ideas have come to the front, but the greatest advance seems to be a better adaptation of methods to local conditions, a better conception of the proper balance between the expenditure of money for hydraulic measures that will bring permanent relief, i. e. drainage in its various forms—and palliative measures, such as the use of oils and insecticides, and top minnows, which, while usually necessary to some extent, require considerable expense for their continuance. Knowledge as to the habits of different species and varieties of mosquitoes has also increased. It has been learned, for example, that, whereas in our southern states the Anopheles mosquito can be controlled by measures which cover narrow strips of territory, in Porto Rico it is necessary to extend the work over much wider areas in order to get the desired protection from the variety of Anopheles found there. It has been learned that in making a popular appeal the term "mosquito control" is a better one than "malaria control." It is being recognized that mosquito control is going to become more and more a matter of engineering. In this as in many other activities one should follow the rule, first learn how to do it and then how to do it cheaply and efficiently.

Plumbing

Just now there is a renewed interest in the subject of plumbing. Several states and many cities are considering revisions of their codes. The shortage of dwelling houses led Secretary Hoover to appoint a Building Code Committee to study the present legal requirements with a view to simplifying construction and reducing costs of small dwellings as far as this can be done with safety. A tentative report of this committee has been made, but not yet published. As the plumbing code presented peculiar problems, a special sub-committee on plumbing was appointed by Secretary Hoover. Under its direction experimental work has been carried on for several months by the Bureau of Standards, and as a result there should be a better understanding of plumbing requirements. It will soon be possible to set up a model set of regulations which can be safely followed for buildings of a given size throughout the country, making some necessary variations for climatic and certain local conditions. It is possible to have simple plumbing layouts in dwellings of one or two stories, but plumbing installations should be so designed as to give a reasonable factor of safety against the escape of drain air, and so constructed that the inaccessible parts of the drainage system will be as permanent as the rest of the building. In buildings of three or more stories the hydraulic and pneumatic conditions are such as to require more elaborate systems of piping in order to secure reasonable protection. Although the air from sewers seldom, if ever, causes specific disease, it is insanitary and indecent to allow it to escape into rooms occupied by human beings. If men want simple plumbing, they must build simple buildings.

For other reasons than those connected with plumbing the small detached house is preferable to any sort of multiple house for the wage earner. It is true that there are economies in the multiple house and that if people insist on living in large cities there are bound to be multiple houses. But tenement life is a smothered and starved life, physically, mentally and morally. For this reason health workers should strongly support the decentralization movement and the zoning idea which are making such splendid progress throughout the country. The city planners of today are men of vision. They do not limit their thoughts to cities—they are planning for districts and large areas. There is further need to build up the rural districts, to improve sanitation on the farm, to give the farmer all the comforts and conveniences that the industrial worker in the city has. The future of our country is in grave danger if our rural regions become deserted and our cities become packed.

All of the subjects mentioned have to do with public health and especially with sanitary engineering. Although the work is constantly becoming greater, the number of students entering this field of activity has not been increasing in recent years as it should increase. The war and the trend of business conditions seem to have turned the minds of young men towards occupations which bring fees and profits rather than salaries. The political factor has also had its influence. Conditions are changing, however, and sanitary engineering will be an attractive occupation for the young men of tomorrow.

As we study public health administration and education, we see things

more clearly than we did a few years ago; we see that it is well for health officers to have a fundamental medical training, and we see that it is well for sanitary engineers to have a fundamental engineering training. These ideas are reflected in the changes recently made in Harvard University. A new School of Public Health of Harvard University and the Massachusetts Institute of Technology will henceforth require a medical degree as a prerequisite for the degree of Doctor of Public Health; while in the Engineering School the degree of Master of Science in Sanitary Engineering will be given only to students who have previously taken a bachelor's degree in Civil (or Sanitary) Engineering. These changes merely recognize the fact that health administration has two sides—a human side and an environmental side. Engineers and doctors must work together, but each must recognize the other's qualifications and limitations.

The reason why young men should study sanitary engineering and go into the public service is not for their own gain, although it will pay them, but because our country needs them. Health officers know that public service is a personal sacrifice. They put in more than they get. They always will and they always ought to. Service is always sacrifice. Our country never lacks for patriotic service in times of war. Young men should do as much for their country in peace time as they would do in war time. No one can do more to influence our best young men to take up public health as a life career than men who are already in it. There is a disposition on the part of many public health officers, city engineers, and others to complain of their troubles. No one can blame them, and yet, after all, is there not a joy in seeing death-rates go down; in seeing preventable diseases disappear; in seeing streets cleaner and houses better; in seeing cheeks rosier, muscles firmer, and backs straighter? Is there not a satisfaction, greater than that which comes from large money earnings, in feeling that one has had his little part in making the world a better place in which to live? And if this is so, why not tell it to the young men?

Tests for Import Diseases

QUARANTINE for import diseases at ports involves the problem of inspecting for disease and yet not holding the passengers or cargo for an undue length of time while so doing. If an undetected case of typhus fever, bubonic plague, or cholera is passed into the country great expense is caused the health authorities and public excitement created; on the other hand if the thousands of passengers are detained they are greatly inconvenienced, steamships companies have their expenses greatly increased, and commerce is seriously affected.

William H. Park, M.D., Director of Laboratories, New York City Health Department, describes in the *American Journal of Public Health*, the tests for these specific diseases which a highly trained diagnostic laboratory should be able to make without great loss of time. Such a laboratory should be equipped to the last detail with slides, swabs, tubes, specific agglutinating sera and media for carrying out the work.

The laboratory force should have trained technicians one at least of whom should have some medical training and be competent to make inspections with the medical officers and help decide what cases are suitable for laboratory help. Besides keeping from the country the usual import diseases mentioned above, such a diagnostic laboratory might be asked to make examinations for leprosy, tuberculosis, and venereal diseases.

The tests which can be quickly and reliably made by a trained force adequately equipped are as follows:

Typhus fever: Between the third and fifth day the blood of up to 50 per cent of typhus fever patients will agglutinate in fairly high dilutions the proteus bacillus isolated by Felix and Weil. During the next few days the great majority of the remainder will react. Few, if any, diseases other than typhus fever give this reaction. A preliminary slide agglutination can be done on the vessel or a report issued within two hours if the blood is sent to the laboratory.

Cholera: Cases not having diarrhea are given a dose of salts. After the salts have operated a sterile swab is passed into the rectum and withdrawn. It is dropped into a tube of peptone solution. When all the crew and suspected passengers have been cultured, the tubes are incubated for eight hours. A loopful of the surface growth is inoculated into a second tube of peptone solution and these are examined after eight hours. When abundant spirilla are found on the surface of the peptone solution, these are tested with a highly specific anticholera serum. These tests can be completed in from twenty-four to thirty-six hours and are almost certain to detect carriers and cases. Plate cultures, isolation of the spirilla, and agglutination tests may be used for verification.

Bubonic plague: Some bubo material, blood, or sputum is cultured on nutrient agar, some is planted in broth and some is rubbed on the shaved skin of a guinea pig. Other material is spread on slides, stained, and examined. After twenty-four or thirty-six hours the cultures are examined. If after investigation the cultures are still suspicious, they are fished and examined. If colonies are suspicious they are inoculated in guinea pigs and rubbed on the hair free skin. The results are known in about forty-eight hours and are very reliable.

At the first meeting of the Federal Board of Maternity and Infant Hygiene, held recently, the plans of all the states which have to date presented final plans for the use of the funds available under the Maternity Act were approved for the year ending June 30, 1922. This includes 23 of the 41 states which have officially accepted the Act. Miss Grace Abbott, Chief of the Children's Bureau of the U. S. Department of Labor, was elected chairman of the Board. The members of the Board are Miss Abbott, Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, and Dr. John J. Tigert, U. S. Commissioner of Education. The States whose plans have been presented and approved are: Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Montana, Virginia, and Wyoming.

Dr. William K. West of Trimountain, Mich., has been appointed consulting surgeon for institutional work in the Upper Peninsula, according to an announcement by Dr. R. M. Olin, state health commissioner. Dr. West is surgeon for one of the mining companies of the copper country. The surgical work at the branch prison at Marquette will come under his supervision.

The Mental Hygiene Bureau of Connecticut*

The Work of a New Bureau and Its Comprehensive Program for Expansion

By WILLIAM B TERHUNE, M.D., Director, Bureau of Mental Hygiene, Connecticut Department of Health, Hartford, Conn.

AT THE present time the term mental hygiene is loosely employed although in recent years books have been devoted to explaining its principles, while daring authors have ventured to define it in a terse statement. There are those who treat the subject in a philosophical manner, holding that the general application of its principles would smooth life's pathways; others consider it as a branch of science and, unfortunately, there are many who deem it merely an euphonious phrase. It is impossible to meet on common ground without explaining at the outset a conception of mental hygiene, not that it has the merit of originality, but that the basis for this presentation may be clearly understood.

Mental hygiene is a lay expression which is practically synonymous with the medical term psychiatry and it was originated for the purpose of offsetting and neutralizing the socially offensive term insanity. It has been said that the field of mental hygiene was greater than that of psychiatry, inasmuch as the former not only embraced the individual, but also the legal and social factors involved. This argument is not valid. Psychiatry necessarily considers the same factors, realizing that not only do individual physical maladjustments play a part in disease, but that environmental and social factors are similarly of great importance. Therefore, since we consider insanity and other departures from normal mentality as forms of disease, and psychiatry as the science of the study and treatment of such disease, mental hygiene is basically a medical undertaking, interested likewise in the study, prevention, and proper treatment of mental disorders, with this difference perhaps; medical ethics forbid the exploitation of psychiatry while mental hygiene, having originated outside of the medical profession, has larger opportunities of an educational nature. This conception of mental hygiene, namely, that it is primarily medical in nature, has been the basis of mental hygiene work in Connecticut during the past three years and this explains why, during the past few months, a bureau of mental hygiene has been instituted in the Connecticut Department of Health, as it is the logical place for such a bureau from the functional standpoint. The progressions and regressions of mental medicine from the time of the early Egyptians up to the present period demonstrate that the treatment of the mentally aberrated has advanced only during those periods of the world's history when such patients received medical attention.

The study of evolution of the treatment of disease is most interesting. It would seem as if the pendulum of medical procedure constantly oscillates between the ultra-conservative and ultra-radical points in medicine, yet fortunately there is a progressive tendency towards stabilization. This is not only true in the treatment of individual disease, but there are apparently trends of public and medical opinion which likewise change from time to time and affect the entire intellectual world. For example, during the past twenty years there have been definite changes of opinion in the medical world in regard to the proper treatment of, let us say, tuberculosis. At first, the tendency was to leave the patients in the community, later a great effort was made to hospitalize them and now they are first hospitalized for study and treatment as well as educated as to how to care for themselves and later, with some exceptions, are returned to the community.

A Community Responsibility

The colonial history of the care of the insane shows that such patients were at first cared for in the community. The first record of public relief for a mental patient in Connecticut is found in the records of the colony of New Haven for 1645, when a patient is stated to have been partially relieved in her home. In 1648, an additional record is made that the same person had been cared for in the home of the marshal, who asked to be relieved of her care. Until the year 1824, when the Hartford Retreat was founded by the State Medical Society, mental patients in Connecticut received little medical attention. Capen says it is hardly necessary perhaps to imagine how these unfortunates were cared for, "but it may be mentioned in passing that in a memorial presented to the Assembly in 1786, Mary Weed of Stratford stated that for twenty years her husband had been so insane as to be kept 'chained'." The insane poor, being classed as paupers, were annually sold at auction to those who were willing to assume the care of such confessedly undesirable persons for a money consideration.

Sixty years ago, the first state hospital was opened at Middletown and forty years later the second at Norwich and since these hospitals were erected, the hospitalization of mental patients has been the most efficient method of caring for them. And so the treatment of mental disease has passed through definite phases comparable to other diseases, such as tuberculosis, namely; a phase of inefficient community care, followed by a phase of hospitalization and the next step in the treatment of mental disease is a combination of these two, that is, hospitalization in the incipiency of the disease for a period of intense study and re-education, followed, in a large number of instances, by return of the patients to the community under close psychiatric supervision.

In 1814, the Connecticut Medical Society, with the help of the General Association of the Congregational Clergy, secured information concerning the extent of insanity in Connecticut, they found "146 persons who, in different degrees, are deprived of reason." In 1821, one hundred years ago, a committee appointed by the medical society reported that there were at least one thousand mentally deranged individuals within the state. On both occasions, some citizens denied the existence of such a large number. This is cited realizing that the present day estimates may be similarly criticised. The number of mentally ill patients among the citizens of Connecticut is not known. At the present time most of the state mental hospitals in this section of the country are filled to capac-

*Read before the New England Health Institute, Hartford, Conn., May 2, 1922.

ity and in Connecticut this is particularly true. The Connecticut State Hospital at Middletown has 2,698 patients, six hundred more than they have facilities to care for. The Norwich State Hospital has one thousand six hundred, and although it is a new institution, it is already crowded. The Mansfield Training School has six hundred patients, they have a waiting list of approximately two hundred.

The percentage of increase of psychotic patients in state hospitals was enormous in the eight years from 1910 to 1918, and this increase has certainly continued since that time. In the eight years mentioned, the increase in Connecticut was 21 per cent against a population increase of 14 per cent. Bearing this in mind, what might we expect in the future? It is impossible to make a definite statement in regard to this, but according to population charts estimating the rate of population increase, the population of Connecticut will probably be doubled in another twenty years, which would lead us to suppose that the institutional population in this state would be more than doubled in that period of time. In other words, if there are over four thousand two hundred patients in our state hospitals for psychotic patients at this time and the ratio of institutional increase over population increase is as three is to two, in twenty years from now, we may expect ten thousand in our state hospitals. The above estimate is only for such patients as are admitted to our state hospitals since we have no way of computing the number of patients treated in private hospitals nor those who, at the present time, receive no treatment whatsoever. The number of mentally deficient individuals in the state are not included in the estimate, but assuming that Goddard's estimate that one out of every two hundred and fifty of population is feebleminded, is correct, in twenty years with an estimated total population of over two million, there would be from eight thousand to ten thousand feebleminded individuals in this state. It should be remembered that these figures are only surmises and are of no use except for comparison and illustration. But manifestly it will not be possible to treat such a large number of mentally aberrated patients for long periods of time in state hospitals, it is therefore necessary to take the next step in psychiatry and materially increase the number of patients on parole and also to provide early treatment for the incipient cases in order that their period of hospitalization may be as brief as possible.

The need for a state agency to coordinate and supervise mental health work was recognized some years ago in many parts of the country and resulted in the establishment of such agencies, some of which have been given considerable authority and a wide scope for their activities. These agencies have been, as a rule, independent departments of the state government and such a form of organization is the most satisfactory one. The functions of such departments vary in different states, but broadly speaking, they outline the policy of the state in treating mental disease, supervise the state and private hospitals and coördinate the various activities of the state hospital. Such a commission as this does not exist in Connecticut. The Mental Hygiene Bureau was instituted in the Department of Health for the purpose of meeting this need, for, as before stated, the logical place from a functional viewpoint, for such a bureau was in that department which had under its supervision the health of the people of the state. Dr. Lewellys F. Barker, Professor of Clinical Medicine, Johns Hopkins University, made the following statement last year: "That schools of hygiene and the public health services must soon fall into line and consider mental hygiene seriously is obvious. The objection sometimes made that the practical problems are too vague, not sufficiently concrete, to justify attack by public health officials is no longer valid. In no direction, probably, could money and energy be more profitably spent during the period just ahead than in the support of a widely organized campaign for mental hygiene." Similar statements have been made by Dr. Thomas H. Haines of the National Committee of Mental Hygiene and by Dr. C. M. Hincks, the latter in a paper entitled, "Mental Hygiene and Departments of Health" published in the *American Journal of Public Health* in 1919. In 1917, the United States Public Health Service published an official report showing the need of mental hygiene in public health work and outlining such a division for the Public Health Service. In Connecticut, the Bureau of Mental Hygiene was instituted on paper, that is, without any funds, in 1919 and the last legislature appropriated the sum of $3,000 for this work. Even with this pitifully small sum, the Bureau has been able to function and when it receives a larger appropriation, there is no doubt that it can be of great service to the people of this state.

Three separate developmental steps have been considered in outlining a mental health program. The last might be called the "ultimate program," the one before that the "next development" and the one before that, the "present undertaking." Broadly speaking, the ultimate program should be one of general supervision and coordination of departments and agencies caring for mental patients. When the time is ripe for such a program, it is hoped that the work will be carried on by an independent department of the state government.

The plan submitted to the Commissioner of Health by the Director of the Bureau of Mental Hygiene formulates its purposes of undertaking as:

(1) To discover the numerous mentally sick and defective individuals in this state who receive no treatment now and provide treatment for them insofar as possible.

(2) To discover and record cases of mental disease and defect in Connecticut, to ascertain the factors responsible for these conditions, and with this information in hand to render a report to the state authorities recommending the most logical method of handling these problems.

(3) To study the relation of mental disorders to social inadequacy, with special attention to delinquency, dependency, health, industry, and education.

(4) To conduct a campaign of public health education relative to mental disorders—to combat mental disease with every measure known to medical and sociological science—in other words, to make war on mental disorders in Connecticut as vigorously as one would fight plague, tuberculosis, and cancer.

The program submitted included (1) a mobile psychiatric clinic. A mobile psychiatric clinic could practically cover the entire state, operated regularly in the centers of population and visiting the outlying districts when special problems arose. This clinic would diagnose, treat and recommend proper treatment for mentally ill and mentally defective individuals.

(2) A survey should be made not only of mental disorders, but rather of social inadequacy in Connecticut. The purpose of this survey would be to determine the existence of and register all mentally diseased and defective individuals in this state. To trace as closely as possible the relationship which mental disease and mental deficiency bear to other problems, and to examine and appraise the value of the different efforts, large and small, official and unofficial which the community is putting forth in its efforts to deal with them.

With such information in hand, a comprehensive program for the treatment of mental disease and defect could be formulated.

(3) An earnest effort should be made to prevent, or at least to curtail the occurrence of syphilitic psychoses.

Approximately fifteen per cent of insanity is the result of syphilis, and here, when considering the paretics, we have a disease so formidable that the mortality rate practically coincides with the morbidity rate. It has been estimated that at least five per cent of the known syphilitics develop paresis. In New York several years ago, Wassermann serum tests were made on the members of 463 families, from each of which a paretic had been taken. Twenty-five per cent of the members of these families had syphilis and practically none of them suspected it.

The bureau of mental hygiene can, by cooperation with the laboratory and genito-urinary division of the Department of Health, watch the known syphilitics in the state for signs of central nervous system lues. It is known that the most efficient method of preventing involvement of the nervous system is early diagnosis and prolonged treatment. Patients who have been infected should be kept under medical observation for many years.

The preventive work in neurosyphilis as outlined here is not very difficult to put into practice, it is being done at least in one state at the present time. The procedure is comparatively simple; the laboratory reports all positive seriological findings to the commissioner of health who sends the physician reporting the case a card asking the physician if he will not allow the case to be reported by name and address, if this was not given at the time when the specimen was sent in. Every year the doctor is sent a card requesting information regarding the progress of the condition of the patient, what treatment has been given and if there is any evidence of central nervous system involvement. This card also brings to the physician's memory the fact that when cerebro-spinal lues occurs, the spinal fluid is usually positive in approximately the fourth year after the original infection. By discovering these early cases of cerebro-spinal involvement and treating them, it is possible that we may be able to reduce the occurrence of many luetic nervous system syndromes.

(4) The power now delegated to other departments of the state government in regard to the inspection and licensing of private hospitals, inspection of state hospitals and all other matters of such a supervisary mental health nature should be transferred to the Bureau of Mental Hygiene.

Considerable space has been taken to outline the next development of the work of the Mental Hygiene Bureau. The present undertaking of this bureau began on October 1, 1921. Previously, in this paper, it has been stated that the proper method of caring for mental patients was by a combination of hospital and community treatment. The belief in this principle has led the bureau to undertake a demonstration, first of the value of intense psychiatric supervision of patients paroled from state hospitals and, secondly, of the treatment of selected patients in the community without having recourse to hospitalization. Mental patients are in hospitals for one of four reasons, namely: (1) because they can be helped or cured by such treatment; (2) because they are a menace to the community; (3) because they have suicidal tendencies, or (4) because of economic conditions. Let us consider these reasons separately. A time may arrive in the course of hospital treatment of mental disease when the patient is apparently no longer benefited by hospital treatment, such patients, under intensive supervision, may frequently be returned to the community. There are again patients who, after a period of hospital treatment, may even improve faster in the community than in the hospital. It is with this first group that we are most interested, for naturally, those patients belonging to the second and third groups cannot and should not be treated in the community. We have been able to be of some assistance to those patients of the fourth group, namely, those patients who are in a hospital because of economic or family circumstances.

The procedure of this intensive parole work is as follows: The work is conducted in close cooperation with the state hospitals. The psychiatric worker periodically visits the hospital and the clinical director gives her a list of patients whom the ward physicians consider might possibly be paroled under very careful supervision. The clinical director, at this time, discusses the cases fully with the social worker. Next, the records are studied to learn exactly what the circumstances were which led to the patient's psychosis and to give the worker a picture of the social and economic setting in which the illness occurred. The names and addresses of the relatives and interested friends are obtained and any little facts about them which indicate whether or not they may prove cooperative. Each patient is interviewed and is encouraged to talk of his plans for the future when he shall once more be a part of the outside community. This first interview, obviously, is a golden opportunity to gain the patient's confidence.

When the worker returns from her trip to the hospital, she makes a thorough social investigation of the home situation in order to discover factors which may have an influence on the patient after his parole. If the home offers any possibilities, an effort is always made to have the patient live there. This is the time for educating the patient's family to a better understanding of his illness and explaining to them in detail what they can do to facilitate his improvement. It is sometimes necessary to make repeated visits in order to arrive at the desired state of understanding and cooperation before the patient is paroled. The consultations with the family are continued after the patient comes home and an effort is made to assist as each definite difficulty arises. When, as is sometimes the case, the home conditions are found altogether unsuitable, or perhaps the patient has no home, it is the social worker's job to find a desirable place for him to live. When the patient first leaves the hospital, it is better for him to be in as simple an environment as possible so that the transition from hospital to extra-mural conditions may require little effort on his part. This fact is always kept in mind by the worker in order to avoid too sudden or complete a change from the simplified hospital surroundings to the more complex world outside.

As soon as the pre-parole investigation is completed, the hospital is notified and if it has been possible to make suitable arrangements, the patient is now paroled. Immediately upon his arrival, the worker calls and renews the contact made at the hospital. In most cases, suitable work is obtained for the patient. His condition is always explained to the employer and close cooperation established between him and the worker. As the patient's welfare is the first consideration, great stress is laid on the kind of work and desirability of the surroundings rather than on the financial remuneration. It is interesting to note in this connection that of the patients now on parole under our supervision, about 50 per cent are gainfully employed. A number of the remainder are housewives who are doing successfully their domestic work and caring for their children; while the others who are not yet ready for

the more taxing and regular work outside are being interested in occupational therapy in their own homes. In many of our paroled cases, there is a great need for occupational therapy. Whenever possible, we try to continue this along the lines followed by the hospital. This has proved to be of such wonderful assistance for rehabilitating the patient and is so greatly appreciated by both the patient and his family that we have come to feel that one of the greatest necessities in our paroled cases is to continue at home the occupational therapy which has usually been so successfully begun by the hospital.

During the period of parole, periodic psychiatric examinations are made by the medical director in each case. These are in addition to daily conferences between the worker and physician when the immediate needs are discussed. However, after each psychiatric examination there is a thorough and careful study made of the case with a review of the progress of the patient and a checking up of all treatment. At this time, the physician outlines the treatment for the future. The task of finding a way to execute this program is the function of the social worker. Perhaps exactly what is done can be explained more clearly by summaries of some records of patients who are now on parole under our supervision.

I—is a female patient, 46 years of age, born in Ireland. She went to school until 15 years and as an adult was always considered intelligent and well informed. She came to the United States when 19 years of age and was employed as a factory worker until 25 years of age when she married and later gave birth to seven children. Six months prior to admission to the hospital, her oldest son died after ten days illness during which time patient nursed him. She never seemed to recover from the depression caused by his death and her condition became progressively worse. On admission to the hospital, the diagnosis was involutional melancholia. After five months of hospital treatment, she began to gradually improve and three months later was paroled into the custody of her husband. The patient had been at home scarcely four months when her husband committed suicide by cutting his throat. Patient again became agitated and depressed and was returned to the hospital for further treatment. It was three months after that she was referred to this bureau for the consideration of parole. The patient's sister was visited. The surroundings were found to be good, the home attractively furnished, neat and clean. The family was large and the sister was caring for the patient's three daughters. (The patient's three sons were with a brother-in-law in the same city.) The priest (patient is a Roman Catholic with normal religious interests) was interviewed and his cooperation was easily secured before the patient left the hospital. After arriving home, she got along well, but before long she began to be dissatisfied with her sister. The physician recommended that she be installed in a home of her own with all her children with her. To do this required money and there was none. The Widows' Pension was tried but, although the patient had been married and all her children were born in this Connecticut city, she was ineligible because her husband was not a citizen. In the meantime, an effort had been made to secure employment for the two who were beyond school age. After several attempts, both were finally placed and are still working at the same jobs. Of course, the wages of these two were wholly inadequate for a family of seven and, as the patient and her children were already settled in a sunny five room apartment (this was necessary before an application for the Widows Pension could be filed) it was necessary that other income be secured and that quickly. Despite her efforts to remain cheerful, patient was becoming depressed. Several social agencies were called upon. From one, a daily ration of two quarts of milk was secured; another promised to pay half of the rent and in addition furnish some groceries; while a third undertook to keep the four children at school supplied with shoes and clothing. As one after another of these promises were obtained, the patient became less worried and finally was again cheerful and happy. Then her teeth were found to be bad and the physician ordered new teeth at once. Here it was again necessary to secure the cooperation of a charitable agency who paid the dentist and whom the patient is repaying at the rate of $1 a week. All this was accomplished several months ago and of late the supervision has needed to consist only of friendly visits, an occasional ride in an automobile, and little encouraging lifts as when our visitor secured a dainty white dress for the six year old daughter who had been chosen to take part in a religious Easter service. Next month, the oldest boy will get his working papers and that patient is looking confidently into the future to the time when her children will be working and they will be independent of outside help.

II—is a female patient 35 years of age who is diagnosed as "mental deficiency with psychotic episodes." She was born in Connecticut, her mother was queer and immoral and her father was considered feebleminded. A maternal uncle is mentally aberrated. Her parents separated when she was five years old and five years after she was sent to an industrial school where she remained until she was 21 years old. After leaving the school, she led a grossly immoral life during which time she had a number of miscarriages and one child who died. She was arrested, charged with lascivious carriage and a year later (February, 1921) she drank carbolic acid in an attempt at suicide. This, according to patient's statement, was because the man with whom she was then living, refused to marry her. It apparently accomplished the desired result as in July of the same year, she was married. It was at the time of her attempt at suicide that she became known to the Mental Hygiene Society and she was under their supervision until in October she became excited, threatened suicide and was finally committed to a state hospital. While there, she adapted herself to her environment, seemed happy and contented. She claimed that all her queer actions were due to the fact that she feared her husband would leave her. After five months of hospital care, she was referred to us for consideration of parole. It was found that her husband had sold the furniture and was making his home with an aunt who opposed patient's parole. However, her husband was so anxious to bring her home, that when he came to us and said he had secured a desirable boarding place with friends (which statement we investigated and found to be true), we consented to try the patient. As soon as she was paroled, the physician saw her and recommended that a job be found for her and that she be encouraged to continue the crochet work she did at the hospital. Through the cooperation of relatives, a job was finally found for the husband at a local factory. The patient was encouraged to crochet yokes and as many of these as she made were sold for her by our worker. Finally, the patient decided she was not making enough money this way, so a job was secured for her at the same factory

where her husband was employed The cooperation of her church was also secured and the deaconesses interested in her. Both patient and her husband worked until quite recently when she was obliged to lay off temporarily because of digestive trouble. Her husband, however, is still employed at the same job and patient is again occupied crocheting yokes.

III—is a negro, an ex-soldier, 29 years of age with a diagnosis of dementia praecox. For several years, before his commitment to a state hospital in May, 1919, he had been the "unsolvable problem" of several local agencies. In December, 1921, he was referred to us for consideration of parole. He was seen at the hospital, the physicians were conferred with, extracts made from the records, local agencies and all near relatives were interviewed. It was found that patient was an orphan with an aunt acting as conservator for his government compensation of which he received eighty dollars a month. This aunt lived in a tiny apartment and was not able to take the patient with her. The cooperation of the colored rector and of a colored physician was secured and a large number of possible boarding homes inspected without anything desirable. Finally another aunt was prevailed upon to try boarding the patient. Here he was to have an airy room to himself (he was suspected of having tuberculosis by a public health doctor), and suitable food. The patient was pleased with this arrangement and paroled under our supervision. The cooperation of his relatives was obtained in providing recreation for him and before work was secured it was felt that he should receive treatment for an old venereal infection. This was arranged for through a local hospital and he had reported regularly for treatment. After his last psychiatric examination, the physician recommended outdoor work and the visitor is now interviewing nurserymen, florists, etc., with the object of obtaining work in desirable surroundings.

IV—is a male patient, single, 48 years of age with a diagnosis of "alcoholic psychosis—chronic hallucinosis." He had been a patient at a state hospital for over ten years when in November 1921 he was referred to us for consideration and parole. The hospital record was gone over carefully, his special abilities and disabilities noted with the object of utilizing the former when he returned to the community. The home investigation revealed the fact that his sister-in-law, who has a large family of her own, could take him to live with her if work was provided for him. For a while after his parole, the patient continued to hear voices, but does so no longer, his insight and judgment are defective, and although he is not well, he has been doing nicely. The real problem has been keeping the patient at work in a city where the unemployment situation is particularly acute. This has been done more or less successfully by eliciting the cooperation of every person or agency that could possibly be of use in an employment problem. In this way, a job of a few weeks duration has been secured and when this ended, another found. It has been necessary to do this a number of times, but with the exception of several days, or perhaps a week between jobs, the patient has been kept constantly occupied. For the past three weeks he has been working steadily, and as the factories are picking up, we hope this will continue.

Of the 66 cases so far referred to us by the state hospitals, 29 or 44 per cent have been found suitable for parole. Of these it has been necessary at some time to return 7 or 23 per cent of those actually paroled, to the hospital for further treatment. We have at present 22 cases on parole and pre-parole investigations are completed in a number of other cases whom we expect to have paroled in the near future. Of the patients paroled, 14 have been diagnosed as dementia praecox, 3 as manic depressive, 1 as psychosis with other somatic disease, 2 as mental deficiency with psychosis, 1 exhaustive psychosis following childbirth, 1 as psychoneurosis, hysterial type, 1 alcoholic psychosis, chronic hallucinosis, 2 as involutional melancholia, 1 as psychosis with cerebral arteriosclerosis, 3 were not diagnosed at the hospital. Of those whom it has been necessary to return for further treatment, 4 were diagnosed dementia praecox, 2 manic depressive and 1 involutional melancholia.

Conclusion

The Connecticut Department of Health has instituted mental hygiene believing that under the circumstances such an undertaking was incumbent upon it if the department kept faith with the people of the State. We look upon it as a new development and both the Commissioner of Health and Director of the Bureau are, I believe, attacking the problem with an open mind. For too long mental disease has been the *bete noir* of humanity, and this, mankind's last spectre, must go!

A commission for child welfare established by a recent Peruvian Government decree is entrusted with the duty of protecting childhood in every possible way. Half of the 10 per cent tax on amusement tickets is appropriated for the work of the commissino which has already proposed converting the exposition work into playgrounds for children and holding a national child-welfare congress

Mt. Sinai's Roof Garden for Children

Wide World Photos.

A roof garden to which children are not barred is located on the top of the new building of Mt. Sinai Hospital, New York, which was built through popular subscription for child patients. Unlike most roof gardens devoted to [illegible]

Disinfector for Canadian Quarantine Service

Construction and Use of a Disinfector and Power House for Maritime Service

By B. EVAN PARRY, M.R.A.I.C., Supervising Architect, Federal Department of Health, Ottawa, Ont., Canada.

THE disinfecting and power house of a quarantine station offers in part an illumination upon the never ceasing activities which are carried on from day to day on our Canadian maritime coasts by the Federal Quarantine Service.

The significance of the term quarantine and the administrative scope of this function of government may be better understood by a brief historical survey covering the practice and principle which obtained in the past centuries and those of today.

It is recorded that the Duke of Lombardy in the year 1383 ordered that no persons should be allowed to enter his kingdom from any infected place under the penalty of the yoke. Other penalties mentioned are whipping, exile, torture, long service in the galleys, work among the sick in a pest hospital, and death.

In the year 1603 an act was passed in England for the relief and ordering of persons affected with plague, but did not contain any provision relating to maritime quarantine, merely dealing with the isolation of persons within England.

An interesting dispatch forwarded in the year 1839 to the late Chief Justice of the Mauritius emphasizes the gradual progress made in the science and practice of quarantine.

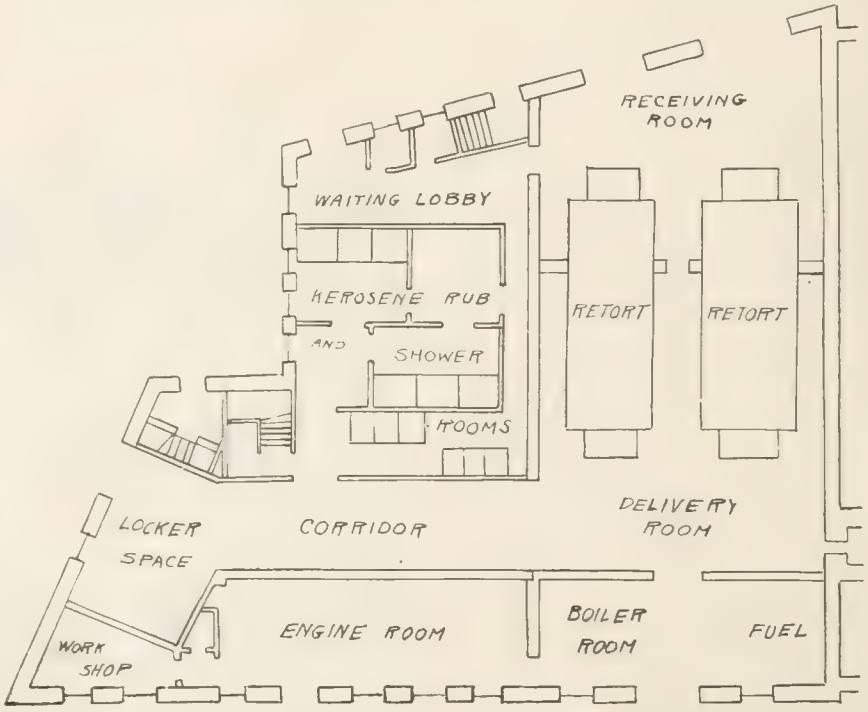
Inter alia this dispatch stated: that the Lords in Council of Great Britain have called upon the Superintendent General of Quarantine for his opinion upon the subject, who has stated that the quarantine laws having been established chiefly against the plague, a disease not to be dreaded excepting by the Mediterranean colonies; he does not conceive it necessary in any of the others to establish any quarantine department for the opening and airing articles of merchandise from the Levant similar to those established in this country, (England) and as to the other diseases to be apprehended the only quarantine arrangement he recommends against them is the appointment in every colony of a health officer and the principal army medical officer at the station with a moderate salary in addition to his pay, who shall be required to visit and report upon every vessel arriving previously to her being permitted to communicate with the shore, and who shall have under his superintendence a hulk or unserviceable man-of-war, or a detached spot on shore fenced in with proper sheds or buildings, so that in the event of a vessel arriving with disease on board, an opportunity might be afforded of separating or altogether removing the crew, with the view of cleansing and purifying the vessel, as well as the clothing and bedding of all persons on board.

Although in the middle of the nineteenth century Great Britain freely admitted vessels which were found to be healthy on inspection, other countries retained the old system which considered it necessary to impose quarantine on vessels from England. It was, therefore, necessary to take steps towards a uniform system which could be adopted by all countries. With this object international conferences were held in Paris in 1857 and again in 1859, neither of which was in any way conclusive. The next was held in Constantinople in 1866, and at this conference some system was introduced into the practice of dealing with vessels, the measures to be taken being based on a foul bill of health indicating an infected port of call and the sanitary history of the vessel during the voyage. This conference was noteworthy because for the first time important principles were recognized, *i.e.*:

(1) Restrictive measures recognized beforehand and satisfactorily carried out are much less prejudicial to commerce and to international relationships than the disturbance to industry and to commercial transactions which follow an outbreak of cholera.

(2) The nearer quarantine and other preventive measures are applied to the original source of the epidemic, the less burdensome are they, and the more can their efficacy be relied upon.

At the Vienna Conference in 1875 the majority of the countries adopted the English system of medical inspection and at the 1881 Washington Conference, international notification of infectious disease first became officially recognized. The convention signed by the delegates to the 1911 Paris Conference was responsible for the provisions relating to yellow fever based upon its verified transmission by mosquitoes and



First floor plan showing (1) receiving room, (2) waiting lobby, (3) kerosene rub and bath rooms, (4) disinfectors, (5) delivery room, and (6) locker space.

for bacteriological examination in the case of cholera. The rôle played by rats in the spread of plague has already been recognized in the Paris Conference of 1903.

Thus is fully exemplified the adoption of international hygiene to increased scientific knowledge and the inadequate measures of the past have become replaced by intelligent application of carefully verified facts, also that international cooperation is the most satisfactory method of dealing with infectious diseases which are liable to spread from country to country.

The Canadian Quarantine Regulations have been framed with the foregoing principles as a basis and among others the following closely pertain to the subject under review:

Every vessel shall be inspected immediately on arrival.

Every quarantine officer shall satisfy himself as to the presence or absence of infectious disease by the personal inspection of those on board or by the sworn statement of captain or surgeon in the form hereto appended, or by both.

Every vessel with infectious disease on board or coming from an infected port or country shall be liable to be detained at a quarantine station for disinfection or observation, together with its passengers, crew, pilot, luggage, and cargo.

To carry out these regulations, it is obvious that with others a disinfector building embodying the various processes is of paramount importance to a quarantine station.

Therefore under the direction of Dr. John A. Amyot, C.M.G., Deputy Minister of Health, Canada, plans were prepared embracing not only precepts laid down for quarantine in the past, but also valuable experiences gained in the world war where disinfection and disinfestation both of personnel and clothing played a very great part in the comparatively low death rate of the troops from disease.

The building under review is located on the wharf of Partridge Island, St. John, N. B., which enables the passengers and luggage to be treated before dispersing to the various buildings allotted to them for hospitalization or detention purposes as may be necessary.

The practice observed when disinfesting detained passengers may be described as follows:

Passengers after leaving the ship proceed to the waiting room where they are provided with a metal disc, numbered, to hang around the neck, a locker correspondingly numbered, some cord, also a string net bag is provided for personal belongings, which bags are woven by the boat crew, and a tag similar to the other already provided.

Six persons are then admitted to the disrobing room, where they undress and place their underclothing, and such of their outer clothing as will not be injured by steam, in the locker. They tie their shoes and such other articles as would be injured by steam in a bundle and attach the spare tag. All these are removed by the attendant to disinfector, using a hand truck.

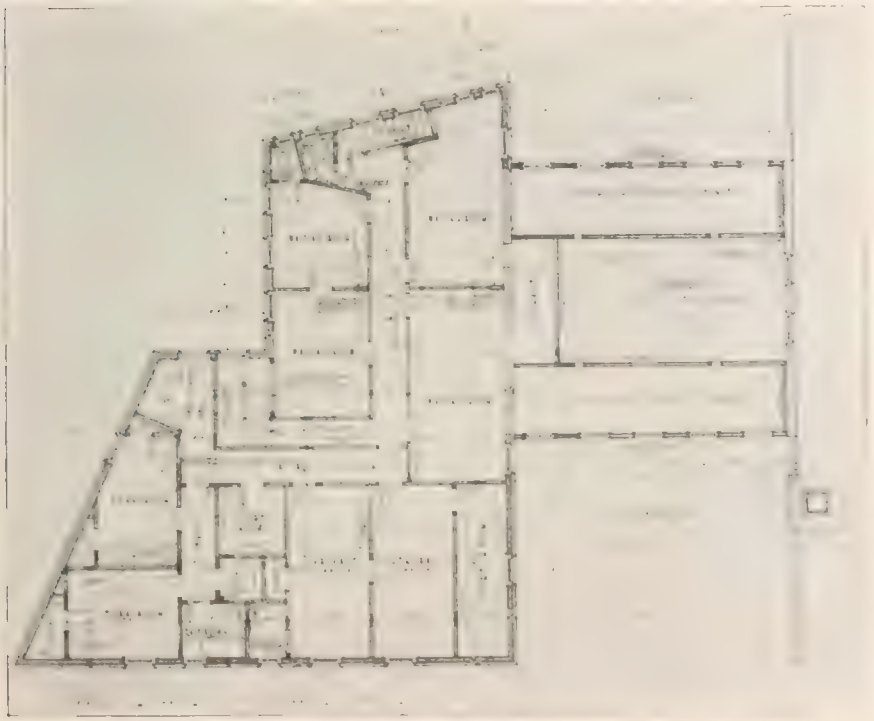
After disrobing, the passengers are admitted to the bathroom where the process of shower, soaping, shower, soaping, shower, drying, then kerosene administered by spray takes place. This method may be slower than administering the soap by spray, but experience has proved that more attention can be given the individual and, therefore, the result is more effective. The passengers are then passed on to the pyjama or exit room, where the attendant distributes sterile pyjamas to each, after which they proceed upstairs to the waiting rooms where the kerosene is allowed to dry before putting on their clothes, the latter having been brought to them from the disinfector after treatment. From this building they are passed to the various buildings as directed.

Humorous situations arise from time to time when dealing with the central European. The Medical Superintendent had on one occasion to invoke the aid of the interpreter to prevent the women undressing and going into the shower baths with the men. On another occasion when eight hundred persons were being dealt with the women became terrified in the shower baths and tried to climb over the top of the partitions.

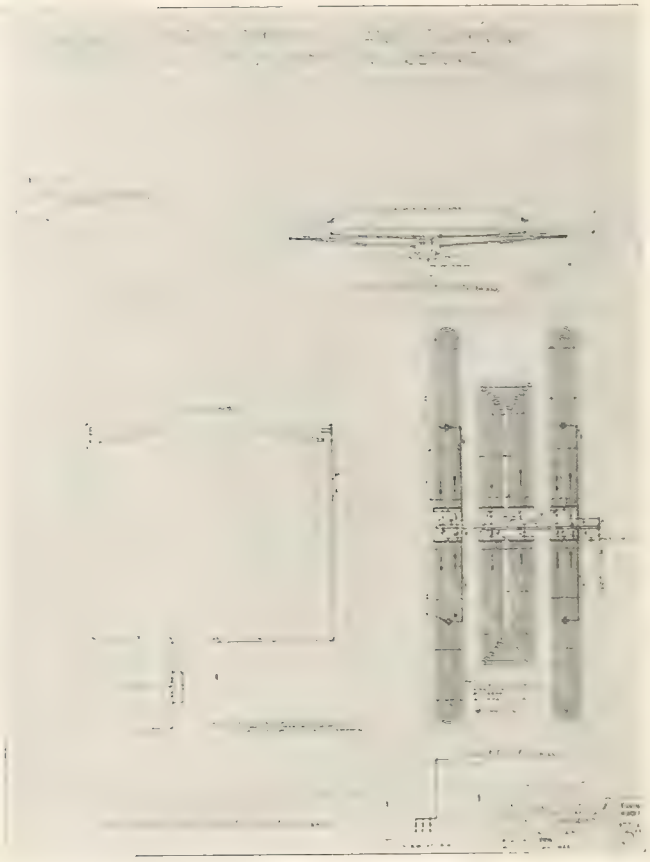
The luggage is transferred from the ship by steel lorries with collapsible trays of suitable dimensions to pass through the disinfectors.

The building is of fireproof construction consisting of concrete foundation walls, concrete columns and floor slabs, the superstructure being faced with red local brick, and lined with terra cotta. The bath unit walls are finished with cement and enameled white, and floors are constructed of concrete and covered with portable wood grids. The waiting and receiving room walls, including administrative offices and boat's crew accommodation are plastered and painted, the floors being hardwood finish. The building is steam heated throughout and lighted by electricity, both of which amenities are generated in the power house with oil burning equipment. The drainage is disposed of by the tidal waters and water supply obtained from the city of St. John.

The accommodation provided includes: (1) Electric lighting plant for Station consisting of a 37½ H P oil engine direct connected to 25 K W D.C. Generator; (2) heating installation with electrical heating and



Plan of the second floor, showing offices and fan room over the rectangular chambers



Heating Detail, Quarantine Station, Partridge Island, St. John, N. B.

compressed air equipment; (3) ventilation system with electric fans; (4) oil fuel storage with pump electrically operated; (5) two disinfector retorts and cyanid chamber; (6) one auxiliary steam pressure disinfector cylinder approximately 8 ft. 6 in. in length by 6 ft. in width by 7 ft. 2 in. in height, the chief function of this retort being that of disinfecting the hospital linen; (7) sixteen shower baths with hot and cold water services; (8) receiving rooms with toilets; (9) disrobing rooms; (10) robing rooms; (11) waiting rooms with toilets; (12) administrative offices; (13) accommodation for quarantine boat's crew; (14) stores; (15) engineer's workshop.

Consideration of the fundamental principles of delousing so that the best results should be obtained were given to the disinfector retorts.

Inasmuch as typhus fever is not transmitted by the bite of the louse, but by a virus which is contained in the excreta of the louse, it is obvious that a method which destroys only the lice and eggs without causing the destruction of the virus in the excreta is not sufficient. Therefore, delousing must be reviewed from the standpoint as that of a process which destroys lice and their eggs and the virus concerned in the transmission of disease.

Various methods have been employed for delousing such as hydrocyanic acid gas, chloropicrin, and various insecticides, and heat appliances. But since these insecticides are not bactericidal, they must be employed conjointly, or in part, with heat and steam. The disinfectors built at this station are specially designed to take care of such conditions and, therefore, the construction is worthy of notice especially so as they do not operate under pressure.

The construction of the general framework is of wood with the inside entirely covered with mono-metal, the joints being rendered air and fume tight. The doors are of special construction, thrice checked and fume tight.

The heating system consists of 1¼ inch pipe coils placed in channels in the floors with steam jets located in such a position as to render efficiently the humidity required for disinfecting purposes, the working temperature being calculated as that of 180 degrees F.

The ventilating system consists of two centrifugal fans, one on each retort, each having a capacity of 1,500 cubic feet of air per minute against 4 inch static pressure and connected to a 2 H.P. motor.

The air ducts are of No. 26 gauge galvanized iron and connected to the chimney stack which rises to a height clear of all buildings.

The cyanid chamber located between the retorts is designed to permit the officer in attendance to operate outside the chamber.

The charge calculated is 3 ounces cyanid per one hundred cubic feet.

When the charge is ready, the fans over the retorts are adjusted for suction and agitation and after the clothing and baggage have been treated the fans are reversed in motion and used for extracting the fumes which in turn are carried away through the main chimney stack.

Such installations as these clearly demonstrate not only the outstanding progress in medical science, but also an earnest desire of the Canadian Government as evidenced by the efforts of Dr. J. D. Pagé, chief of the Division of Quarantine, Immigration (Medical) and Sick Mariners' Service, Federal Department of Health, Canada, to protect the inhabitants of her Dominion from disease, thereby laying a sure foundation for a vigorous and healthy nation.

The Testing of Cattle for Tuberculosis

That testing cattle for tuberculosis and the cleaning up of infected herds are having a permanent effect in reducing the extent of the disease is shown conclusively by figures recently collected by the United States Department of Agriculture.

The inspectors were asked to supply statistics on the results of three or more tests on badly diseased herds, those that had not less than 10 per cent of reactors on the first test. The first test on more than 58,000 cattle in these bad herds showed that 26 per cent had tuberculosis. Another test six months later on the same herds, from which the reactors had been removed, showed only 6.9 per cent of the disease. By another six months the percentage had gone down to 2.8.

The reports from which these figures were taken show that under normal conditions herds badly diseased may be established as relatively free in a short time. They also show that eradication work can be carried on without destroying the cattle industry. Erratic results were obtained on a few of the 1,882 herds tested, the list of this class containing fewer than 100.

Public Health Problems in Palestine

Present Conditions in a Backward Country And the Means Available for Correction

By I. J. KLIGLER, Chief Bacteriologist and Sanitarian, American Zionist Medical Unit, Palestine

FROM the standpoint of public health, Palestine is still at the threshold of its development. Long neglected by an indifferent government and a backward uncultivated people it stands today where most modern states stood fifty years ago. The early phases of sanitation such as public water supply and sewage disposal, which are at present only as unpleasant memories in the greater part of the United States, have hardly been attacked here. But these problems, common to a greater or less degree to all civilized countries, are hardly as serious as those more peculiar to the country and due to various local factors. Conjunctivitis and malaria are responsible for a far greater morbidity than is impure water or contaminated food. It should be added that here as elsewhere the war has left its traces behind it; it has nullified small beginnings toward sanitary improvement and introduced new diseases, such as bilharzia, which were nonexistent before the war.

Sanitation, urban or rural, is still where it was in the United States more than a generation ago. Not a single one of even the larger cities has a sewage system. In Jerusalem part of the old city is provided with an old sewage system which carries the sewage to the valley of Kidron outside the city wall where it fertilizes abundant vegetable gardens. A small section of the new city outside the walls has also been provided by the Zionist Organization with a modern sewer and disposal plant. But in the greater part of the new city, as well as in the other cities of Palestine, the Arab toilet and cess pit or the old cess pit with a modern flush seat still holds its own. It is a common and not a very pleasant sight to see two natives pumping the contents of the cess pit into a cart or carrying the contents in Standard Oil tins from the pit to the cart. The sewage is then carted away splashing over the streets, leaving a trail and a stench behind it.

Public Water Supply Rare

Public water supply is also a rare thing. In Jerusalem part of the water is now being supplied by the city, but the watershed is continually exposed to pollution and chlorination is the only safeguard used. Last June Jerusalem was visited for the first time in recent history by a typhoid epidemic that had all the earmarks of being water-borne. In Safed also there is a beginning of a city supply, but usually the cities still depend for their water on individual wells and rain water cisterns. This system has at least one advantage in a country of low sanitary status, namely, that extensive water-borne epidemics are practically unknown.

Food control is practically nonexistant, and would be extremely difficult to carry out. Milk is still supplied by individual dealers. The cowsheds and dairies are filthy and teeming with flies. The Arab still brings his goat herd to the front door and draws the milk into the customer's utensils, often wetting his fingers with sputum to get a better grip on the teats. But this primitive procedure is indeed just as much a safeguard against extensive milk-borne epidemics as is the individual water cistern against water-borne infections. The meat shops and food markets are wide open and exposed to countless flies that make regular excursions from the public or private latrines near by.

Prevention of infant mortality, prenatal care, control of midwives, that whole phase of modern preventive medicine called by Winslow "Control of Community Infections," as well as that relating to personal hygiene are still untouched.

If conditions in the cities are presanitary those of the urban districts are medieval. The natives are extremely ignorant and superstitious and still live in the same crowded villages in which dwelt their ancestors a thousand or more years ago. The houses are low roofed, poorly ventilated, mud or stone hovels, built partly underground and shared alike by man and beast. In the same dark and dirty room are crowded the family, the goats, and the donkey. The village streets are narrow, crooked, and dirty. There are no toilets; the back of the house or the open field serves the purpose well enough. Flies plague one incessantly and many a child's face is literally black with them.

Living in a land where water is scarce, the native has learned to treasure his water. It seems, in fact

Pumping the sewage from a hospital cess pit to the tank in which it is carted away.

that the villages where possible were built near a spring. Elaborate structures were built to protect this spring. But the water is usually exposed to pollution and near the spring there is always a birka or pool which catches the overflow and serves as an admirable breeding place for mosquitoes.

The Jewish settlements are built on a much more modern plan than those of the Arabs, but the sanitary conditions in most of them are bad. Few of them have toilets; few of them appreciate the need of manure protection; all of them are plagued by flies. The water supply as a rule is fairly good.

An interesting sanitary problem has arisen recently from immigration. Many of the Jewish immigrants who have come into Palestine during the last year have found employment in road building for civil or military purposes. These workmen live in groups of 50 to 250 in camps, scattered all over the country. There is therefore, in addition to the urban and rural problems that of camp sanitation as well.

For a semi-tropical country of low sanitary status the number of important diseases is relatively small. The climate of Palestine is a healthy one and in many respects beneficial. Tuberculosis does not take the toll that it does in the United States or Europe. In fact phthisis is not apparently as common as are other forms of tuberculosis. Scarlet fever and diphtheria are quite uncommon. Hook worm does not exist and only one or two small foci of bilharzia, undoubtedly introduced by the Egyptian Labor Corps, have recently been found. Until this year enteric infections were also uncommon and very mild in character. Venereal diseases are rare among the Jews, but are apparently common among the Arabs. Recently an Arabic village a few miles from Jerusalem was found to be completely infected with syphilis.

The few serious diseases which prevail here are due largely to human carelessness and gross ignorance. The two most important diseases are malaria and conjunctivitis. In addition there are the minor worm infections, dysentary and papataci fever in summer and pneumonia in winter. There are always a few sporadic cases of meningococcal meningitis, typhus and relapsing fever, but since the end of the war they have not appeared in epidemic form.

Malaria is the most serious disease in Palestine. Its prevalence varies each year according to the precipitation and temperature, but it always occupies first rank in the morbidity records of the dry season. Reliable morbidity statistics do not exist as yet, but some idea of the importance of this infection may be obtained from examinations made among immigrant groups last winter at the beginning of the rain season. Of 170 immigrants who had been in the country six months or less 71 or 42 per cent had already had one or more attacks of malaria; of 68 who had been here six months to one year, 44 or 65 per cent were infected, and of a group of 48 who had been here more than a year 42 or 87.5 per cent had had malaria. This serious condition is in large part created in the cities by the cisterns which offer a splendid breeding place for the anopheline mosquito. In the rural section it is largely a result of open wells, the primitive methods of irrigation in poorly constructed canals, which allow the flooding of the field, and the overgrown stagnant wadis which offer numerous breeding places for the anopheline mosquitoes.

The conjunctival infections are next in importance. Trachoma is highly prevalent, more so in the rural section and small towns than in larger cities. In ten thousand Jewish school children examined in 1913 the incidence was 31 per cent; in 1920 after treatment it was reduced to 20 per cent. But in the rural section the incidence ranges from 50 to 95 per cent. In Beer-Sheba the incidence among the school children this year was 95 per cent. In addition to trachoma there recur every summer epidemics of Koch-Weeks, pneumococcal and gonococcal conjunctivitis. Crowding, dirt and flies coupled with ignorance and superstition are, responsible for this condition, and only time and untold effort can ameliorate it.

A word must be said about the worm infections for though they are usually considered unimportant they seem here to play a significant role. Directly or indirectly they are responsible for many of the intestinal disturbances which occur here. An idea of the prevalence of worm infections may be obtained from the following laboratory examinations. During the months of January to September inclusive there were examined in the laboratory of the Rothschild Hospital 988 stools for parasites. The stools were mostly from clinic patients. Of these 988 stools 492 contained worms, an incidence of 50 per cent. The most prevalent forms were ascaris lumbricoides and trichocephalus dispar; the tenias were less numerous. It is interesting to note that there was only one case of ankylostomiasis and two cases of strongyloides; trichiniasis is nonexistent. Bilharziasis one of the most prevalent diseases in Egypt, has so far been discovered in only two circumscribed areas, and was no doubt introduced during the war.

To cope with the various problems existing here, there are two central organizations: the Government Health Department and the American

A market scene near the Jaffa Gate, Jerusalem, where food control is practically non-existent.

Zionist Medical Unit. Aside from a few small, poorly endowed private hospitals and some mission hospitals, one finds here none of those welfare organizations so prevalent in the United States which contribute greatly toward the advancement of public health. Consequently, practically the entire medical and sanitary work in the country is carried on by these two organizations. But this is not all; not only do the inhabitants fail to initiate any public health reforms, but very often through ignorance or superstition they frustrate the attempts made by either the Health Department or the A.Z.M.U. to improve health conditions.

The Health Department is centrally organized and is responsible for the health conditions throughout the country. The country is divided into districts and in each district there is a responsible principal medical officer with as many assistant medical officers as the budget allows. The general organization of the Health Department is well conceived. There is a quarantine service, an epidemiological service, a central laboratory, a hospital service and a section of vital statistics. But in its details, it falls short in many respects, largely because of lack of funds and sometimes because of poorly qualified personnel. Greater attention is paid to town sanitation because of greater concentration of population, while but little is done in the rural communities. An attempt is made to control water supplies and plans for sewage disposal exist so far only on paper.

The Health Department has thus far not been able to carry out food and milk control. Infant welfare work is negligible and the infant mortality in Jerusalem is between 150 and 200 per 1,000 births. On the whole though considering the limited funds and the magnitude of the problems confronting it, the health department has done reasonably well.

By a tacit understanding, the Health Department has left to the Unit the work in the Jewish colonies and the Jewish labor camps; the care of the Jewish immigrants and the hygiene of the Jewish Schools. But the most important undertaking of the Unit consists in the establishment of a series of district hospitals in various centers. The Unit maintains a first class hospital and nurses training school in Jerusalem, and hospitals in Jaffa, Tiberias and Safed. There are well equipped laboratories in Jerusalem, Jaffa and Safed which are doing the bulk of the work for the country.

An open back privy an advance over the privyless state characteristic of most of the villages and settlements.

Important as is this hospital work the Unit has done real pioneer work here in rural and camp sanitation, in school hygiene, in trachoma control and in infant welfare. As was indicated above, rural sanitation was not only unknown here but was looked upon with suspicion. Today wherever the Unit has been able to work, chlorination of water is accepted as a good thing despite the unpleasant taste, sanitary pits and pail privies are gradually being introduced and reduction of flies of proper disposal of the manure is slowly gaining headway. The colonies are divided into groups, and for each district there is a sanitary inspector who is responsible for the sanitary conditions of the settlements. The sanitary conditions of the camps are controlled in the same way by a resident sanitary inspector, who looks after the water, toilet, kitchen, garbage disposal, fly control, etc. There is a department of school hygiene with visiting physicians and nurses which is modelled on the American system. Trachoma control is being carried on in the city schools and settlements. The Unit is at present the only agency that exercises control over midwives. By paying them small fees for all cases they deliver, the Unit is enabled to insist on high standards. It also furnishes prenatal care to the poor through the clinic or through home visits by physicians.

The malaria problem is so serious in Palestine that the existing agencies and the measures adopted by them for its control deserve special consideration. Again the only organizations actively engaged in constructive work are the Health Department and the Unit. The work of the health department has been thus far extensive in character and superficial. In the cities, untrained laborers, in the main unreliable, petrolize cisterns and cess pits at intervals. Much good has resulted even from this work and a reduction in the malaria incidence is noticeable. In the rural districts malaria inspectors are sent bi-monthly to distribute free quinine to whosoever will take it. The value of this procedure is minimal. The hopeful thing in the government work is its plan and program. It is preparing surveys for active work when and if the funds will be forthcoming.

The Unit has worked more intensively. It has selected a few special areas where experiments in malaria control by petrolization, eradication of carriers, and quininization have been conducted. The results should serve as a guide for anti-malaria work in Palestine. In addition it has done intensive work in a few of the settlements in Upper and Lower Galilee where by removal of stagnant water, drainage and petrolization, settlements that were considered pest holes of malaria have this year been rendered comparatively malaria free. But as is the case with the government, the real work that the Unit can do exists at present chiefly in

Pollution of a watershed by irrigation channels. The water is deflected from the aqueduct to the irrigation canals by a vertical lock. On opening the lock the water from the channels flows back into the aqueduct.

plan, and its execution will depend on the funds available.

Summary

Palestine is on the whole a healthy country, and could under normal conditions be kept reasonably free from diseases with comparatively small funds. But owing to the backward status of the people and the deplorably neglected conditions of the country certain serious problems exist which are rendered more serious by the steady inflow of a susceptible alien population. The most serious immediate problems are general sanitation and the control of malaria, trachoma and other eye diseases. To cope with these problems neither of the two agencies alone has sufficient funds to accomplish any substantial improvements. The two organizations working in harmony and supplementing each other could rapidly bring the health conditions in Palestine to the level of that other civilized communities. With large funds, the desired results could be attained more readily, but under the present conditions the hope for rapid improvement lies in harmonious cooperation between the two existing agencies for the best utilization of the limited amount of money at their disposal.

Sewage Disposal on Farms and Country Estates

If the "back to the farm" movement is to become really popular, farm sanitation and sewage disposal must show an improvement over that noted by the state of Illinois in a recent survey of a southern state which revealed that of 1,501 farmhouses 62.8 per cent had no privy of any kind. Investigations by experts of the sanitary conditions of farmsteads with regard to soil and water pollution has disclosed almost primitive sanitary arrangements. Since upon the farm which supplies food products and milk to the cities the health of urban communities depend, farm sanitation is imperative.

William Paul Gerhard, C.E., Dr. Eng., of New York City has published a pamphlet on this subject condemning practices often recommended by health bulletins. Among these unfortunate recommendations Dr. Gerhard assails the pit privy which pollutes the soil and frequently the water in farm wells or springs and is therefore a constant menace to health.

There are four approved methods of sanitary sewage disposal which are safe as well as feasible for country installation,—the dry disposal system, the liquefying or biological system, the chemical system, and the water-carriage system. The late Col. George E. Waring, Jr., sanitary engineer was the first champion of the "earth-closet" system fifty years ago. This has been in general use in the country districts of England. It can be attached directly to a dwelling in a service wing which is a great advantage in cold weather. The use of "peat dust" because of its highly absorbing powers rather than earth was recommended in a bulletin issued in 1896 by the United States Department of Agriculture. The vast fields of peat in Canada should make this accessible for use in this country.

With both the earth-closet and the pail system constant care is necessary. Chemical closets have been manufactured in recent years, some of which can be used indoors. As these are expensive a little more money might well be invested to install a water-flushing system. In a water-carriage system the liquids should not be drained into the usual form of leaching cesspool but should be water tight.

Rhyming One's Way to Good Health

"Apples are good,
Apples are sweet
Apples are good
For cleaning your teeth."

wrote Grant Waldman, member of the open air class of Public School No. 158, New York City. This and many similar rhymes concerning the nutrition of dates, of brown bread, our well known friend Vitamin, of milk, of fresh air, are in the book "Many Roads to Health" published by the Child Health Organization of America and edited by Mary K. Moriarty. The booklet contains pages from the children's own health books in which each day they wrote jingles and pasted with care advertisements illustrating their thought.

"Health was not taught as a separate subject but wove itself into and around the three R's," states their teacher. In the school it was possible incidentally to get the children interested in the rules of the health game. Just before Man O' War's race with Sir Barton at Windsor, Canada, the children followed the details of his training, learned how he was fed certain foods and was given the proper physical care. When he came out victor in the race, this strengthened the children's belief in the health game.

There were twenty-six underweight children in the class. At the end of the year each made his grade and two had made extra grades. Each child had his own weight chart on which a graph was drawn day by day with his increase in weight. At the end of the term from February to June weight had increased from one pound to twelve and a half pounds, with the average gain falling around five pounds.

By means of the scrapbook lessons in cleanliness in the bed room and the kitchen as well as good personal habits such as bathing, brushing the teeth, and sleeping in fresh air were inculcated. To the children it was a most fascinating game.

Teaching the Farmer Social Disease Control

By MILLARD KNOWLTON, M.D., C.P.H., Regional Consultant, U. S. Public Health Service, Washington, D. C.

THE venereal disease campaign like any other campaign for public action must be carried to the people. In a state where most of the people are farmers this means carrying information to the farmer. It is true that the problem may be difficult of solution, but any program will be incomplete and one-sided if it does not contemplate reaching the farmer as well as the city dweller.

There is no doubt some basis for the argument that venereal diseases are more prevalent in the cities than in the rural sections and for that reason the campaign against them should begin in the cities. It is true that cities, especially cities in which there is lax law enforcement against prostitution, serve as distributing centers for distributing venereal diseases throughout the regions round about. While it is natural and easy to begin an educational campaign in the centers of population where the people are readily reached, it is essential that extension of the campaign to the rural sctions be not too long delayed. This is especially important in dealing with the venereal disease problem where personal conduct is such an important factor in prevention. Enlightenment may not save all from venereal disease, but it is especially effective in saving the best, the strongest, the most self-controlled from this catastrophe. In weighing the relative importance of city and country as fields for work it must be remembered that only about half the population of the United States live in cities; the other half live in rural sections and small towns.

Accepting the principle that the campaign must be carried to the country, there are certain general requirements for such a campaign that must be met: (1) Traveling.—In the first place it is apparent that whoever has information for the farmer must go to the farmer with it—that a show to reach the farmer must be a traveling show. (2) Motion pictures.—The most effective means of teaching almost any subject is by motion pictures. For years health instruction of various kinds has been given by this means and it so happens that the very best motion pictures on any health subject deal with the venereal disease problem. Therefore motion pictures may well be used in carrying information to the farmers. (3) Lectures.—No appeal is so strong as the personal appeal. A motion picture used for educational purposes is made doubly effective by a good lecturer. In fact, there is reason to doubt the wisdom of using motion pictures for venereal disease instruction without a lecturer present to lend dignity to the situation and see that the right kind of atmosphere is created for presentation of the picture. (4) Educational literature.—An opportunity will be lost if persons who attend such lectures are not given some pamphlets or literature to carry home and read at their leisure. (5) Adaptation to small cities.—It is essential that the plan adopted be suitable for use in small cities, say cities up to 25,000 or even 50,000 population, as well as for use in rural sections. This is necessary to avoid duplication of the equipment for city work, and in order to permit working by county units —completing one county before going to the next. (6) Low cost.—It is essential, of course, to keep the cost within reach in order to make the plan feasible.

All Classes Reached

A type of equipment that will meet the foregoing requirements is an auto truck carrying an electric generator and motion picture machine. This kind of truck was tried out in North Carolina in the summer and fall of 1920 with marked success. Between August 9 and the last of November five counties—Cumberland, Harnett, Robeson, Hoke, and Durham—were visited and lectures were given not only in the cities but also in the rural communities at convenient locations for all people to attend. Meetings for women were held in the afternoons and for men at night. A colored lecturer also held meetings for colored women in the afternoon and for colored men at night. Thus by the employment of two lecturers simultaneous meetings for both races could be held. At each meeting a brief lecture was given, motion pictures dealing with the venereal disease problem were shown and explained, questions asked by the audience were answered, and finally circulars and pamphlets giving information concerning venereal diseases were distributed. The pamphlets now being used have been prepared with great care and have been found to accomplish their purpose admirably. The use of these agencies by a lecturer who can answer questions and explain obscure points makes the campaign very effective. In the larger towns it was found necessary to stay two or more days in order to afford an opportunity for all to attend the lectures. In the rural communities one day was sufficient. Thus most of the time the show was making one day stands and for this reason it was kept moving rather constantly from one locality to another.

Various kinds of buildings were selected in which to hold the lectures and show the pictures. Sometimes it was a church, sometimes a schoolhouse, sometimes a theatre, and sometimes the pictures were shown out of doors to an audience assembled under the starry sky. In one place a tobacco barn was used for this purpose and the mules in their stalls on either side of the area-way used as an auditorium looked out upon the scene.

The people who attended these shows were of all kinds and from all stations in life. Society women sat beside factory girls and learned things of great interest and vital importance to both. The pictures had a message alike for the silk-gowned woman wearing a Parisian hat and the woman clad in a calico wrapper and sunbonnet who came barefooted to the lonely schoolhouse in the pines and chewed her snuff stick while the pictures were thrown upon the screen.

That great interest was aroused in all communities visited is attested by the large audiences, the frequent expressions of approval, the earnest attention given the speakers, and the eager request for literature to be carried home. Occasionally a man with a mistaken idea that women must be ignorant in order to be innocent would object to his sisters or his wife attending the meetings and learning something of the great venereal disease problem. Such instances were exceptional, however. Usually both men and women gave their most enthusiastic endorsement to the program for disseminating information concerning venereal diseases and the methods of prevention.

All together 319 lectures were given in connection with this field car experiment. While the men attending these lectures outnumbered the women almost two to one, there were still a

good many women present as the total attendance was 53,659, or 31 per cent of the entire population of the counties visited. Since approximately one-half the population were not eligible for admission because of youthful age this means an attendance of more than one-half the adult population, which is considered a remarkable showing indicative of unusual interest.

Numerous incidents during the experiment show individual interest in the matter. For example, at one school a woman stopped the show soon after it began and said that if the rest of the picture were as good as the first, she wanted her two daughters to see it. The result was that the audience waited until she went home and brought her two daughters to see the picture. Another place a man from the audience came to the speaker after the meeting and offered a five dollar bill as a contribution to the cause. The man said; "What I have seen and heard here tonight is worth more than a hundred dollars to me and my family and especially to my two boys. If I had learned this lesson as a young man I would have been a different man and would have a different story to tell about my life. I cannot spare a hundred dollars just now but I do want you to take this five dollar bill as evidence of my appreciation for the information you have given me." Of course, his five dollars could not be accepted but it was suggested that he contribute it toward the maintenance of a free clinic for the treatment of venereal diseases. Another man who attended a lecture wished to present the speaker with a jug of "moonshine." As the speaker happened to be "on the water wagon" this also was declined.

On a typical day with the exhibit in a rural community the lecturer and mechanician start out in the morning with the car and go to a schoolhouse or church some miles away in the pines where the exhibit for that day is to be held. No other building is in sight, but the show has been well advertised in advance, and as the lecture hour approaches people come out of the woods and fill the lonely school or church with an eager audience that is all attention when the lecturer steps to the platform and begins to talk. Some of the people came through woods along paths and roads while others merely came through the woods. The wonder is where they all came from.

When the lecture is over they all have something to say to the lecturer before departing. Some offer congratulations, some want further information and ask various questions. Some request that the exhibition come again, and many of the men say, "My God, I wish I had known this when I was a boy!" The women thank the lecturer for telling them the story and say, "It is a great work you are doing, even greater than the work done by the minister!"

Audience's Reactions

At one place a patriarch of eighty-four years got up and said: "I am glad I saw this picture and heard this talk because I can see now how fortunate I have been in having led a clean life. I hope every young man here tonight will take this lesson to heart. We certainly ought to be thankful to the government for the good it is doing with these pictures. There is only one mistake that the state and government have made. They ought to have begun this work fifty years ago." Another man arose, endorsed all that the patriarch had said and continued, "Like him I have been lucky enough to have been a clean man all my life. I am the father of thirteen children including five sets of twins, and all are healthy and sound. I am not priding myself but all I can say is these pictures prove it pays to lead a clean life. From what I know of conditions among men in this end of the country, I can repeat what the patriarch said that it is a pity the state and the government did not get here with this show fifty years ago."

In one town the interest was so great that arrangements were made for pictures and lectures on Sunday night. The churches were closed in order that the members might attend the lectures and learn the great moral medical lessons conveyed by the pictures. When ministers voluntarily offer to omit a Sunday night service in order that their members may be free to attend another meeting it is evidence that the other meeting is regarded as an important one.

This great interest is due to a number of factors. In the first place people appreciate the vital importance of the venereal disease problem and want to know more about it, especially about methods of prevention. In the next place the campaign was organized on such a basis as to bring the matter forcefully to the attention of the public. In the third place, great care was used in the presentation of the whole matter so that the people were led to appreciate the sincerity and earnestness of the effort.

In working out the general plan of campaign it was arranged that a skilled publicity man should go ahead of the exhibition, make all arrangements for its showing, advertise its coming through the newspapers and by means of placards and handbills so that everybody would have a chance to know about it and thus prepare the way for a successful showing when the exhibition arrived. The field car itself carried three men, a lecturer for white people, a lecturer for colored people, and a mechanician. These men carried out the programs set up and advertised by the advance agent.

As indicated, the work with the field car was carried on as an experiment to demonstrate the value of such methods in educational health work. The idea of conducting a campaign of this kind originated in North Carolina and for that reason when the National Government and the American Social Hygiene Association became interested in the matter it was determined to experiment first in the state where the idea originated. Thus it happened that the experiment was financed jointly by the United States Public Health Service, the American Social Hygiene Association, the North Carolina State Board of Health, and the local communities where the exhibition was held. The field car was purchased and equipped by the American Social Hygiene Association with funds provided by the American Red Cross.

So successful was this experiment in arousing interest and disseminating information that it was desired to organize such a campaign on a permanent basis. With that end in view, plans were formulated for constructing a field car equipment that would weigh about one-half as much as the one used in the experiment. The weight of equipment is of considerable practical importance for the reason that a heavy car mires down or goes through bridges so frequently on country roads as to impede progress materially and sometimes cause the missing of engagements. A lighter car such as the one planned, that would be much more dependable for this purpose.
would be much more dependable.

Unfortunately the failure of the federal appropriation for allotment to states for venereal disease control work by state health authorities has in recent months so reduced the funds available for this work that the plan had to be abandoned.

Poughkeepsie Bus Terminal

IN the past shoppers from the rural districts have had little consideration and their inconvenience was scarcely appreciated before the days of the automobile when a large quota of the citizenry "took to the road." Towns on the main thoroughfares often draw more than their share of responsibility for the care of the nomadic tribe that travels in automobiles, but here and there cities and towns have provided camps, resting places, and comfort stations which afford a real respite from the dusty road.

The problem of Poughkeepsie, N. Y., was twofold. It is a favorite stopping place for automobilists, being the largest town and the halfway point between Albany and New York City, and the terminal point of some sixteen or more bus lines to neighboring cities. Traffic conditions at congested points became a civic problem in which the Chamber of Commerce become concerned. The plans by which the difficulties were overcome are told by R. W. Budd in a recent issue of The *American City*.

Many of the large busses which made regular trips daily to various towns within a radius of twenty-five miles received and discharged their passengers on busy street corners or in front of well known stores. This not only blocked the streets, but prevented other automobilists from stopping in front of mercantile establishments where they desired to shop. In addition there was the inconvenience of passengers who were required to wait outside on the streets in all kinds of weather.

Quarters were secured in the heart of the city two doors from Main Street and on the main highway between New York and Albany, where there has been opened a bus terminal and public comfort station. An attendant is in charge of the waiting room to give out information, to receive parcels to be delivered to the bus lines, and to check suit cases and bundles. The comfort station is equipped with lavatories, five-cent pay toilets, mirrors, running water, soap, and towels. A freight platform is provided for larger packages as no parcel larger than a suitcase is allowed in the waiting room.

A large parking lot near by is reserved for the exclusive use of the busses. This lot is fenced, is under proper protection, and all busses are required to park there when not actually receiving or discharging passengers. No bus is allowed to park in front of the waiting room until ten minutes before the scheduled starting time. This convenience was taken advantage of by every bus driver, but in order to eliminate the possibility of returning to the old street-corner parking, an ordinance was passed by the common council restricting the parking of cars. Bus drivers and patrons alike are enthusiastic over the conveniences thus afforded by the Chamber of Commerce.

Another difficulty was covered by providing parking, also for the increasing number of pleasure cars which crowded the thoroughfares and side streets. A lot across the street from the bus terminal was secured and made ready in cooperation with the Board of Public Works. The Chamber secured an attendant to guard the cars parked there. Cars are checked as they enter, and the owner is given a corresponding identification number. No charge is made for this service, but the attendant is permitted to receive gratuities.

With the provision made for the parking of cars and busses, facilities for the handling of freight and small packages, a waiting room conveniently located, a comfort station modern and well equipped, attendants courteous and always ready to give desired information, Poughkeepsie's welcome leaves a lasting impression that the city's interest in her visitors extends far beyond the matter of dollars and cents. Each visitor as he leaves for his home town has a satisfied feeling that in turn redounds to the benefit of the city in its industrial, mercantile, and financial growth. Its health aspect is one of great importance.

With a traveling public approximating two million tourists a year, the Poughkeepsie, N. Y. Chamber of Commerce [illegible] and provided conveniences which are [illegible] appreciated and redound to the benefit of the city.

The government has introduced a bill for the prevention of avoidable diseases in Spain. The bill provides for the compulsory notification of communicable diseases; enforcement of preventive measures especially as regards tuberculosis, leprosy, venereal diseases, malaria, and infant mortality; safe water supplies; creation of food and hygiene laboratories; industrial sanitation; school hygiene; and the appointment of sanitary inspectors. The present public health law in Spain goes back to 1855.

The Medical Society of New Jersey will cooperate with the State Department of Labor in arriving at a just rate of compensation for services given to put into effect the amendment to the Workmen's Compensation Act. The new measure provides for medical and surgical service in excess of the former fifty dollar limit and hospital care in excess of the same figure in cases in which application for such service has been made to the Compensation Bureau. To prevent overcharges in medical service, the state medical society will name a physician in each compensation district to pass on the reasonableness of bills in dispute.

Under the auspices of the North Carolina Tuberculosis Association, with the cooperation of the state board of health, an intensive campaign will be conducted for malnourished children in several counties of the state.

Digest of Sanitary and Hygienic Advance

IN the profession of sanitary medicine, one is either, to employ our expressive American *argot*, "a live-one" or a "dead-one." The "dead-one" is content to carry on his job in the same old routine way, to blunder through in the ceaseless combat against disease armed with the archaic, ineffective weapons of other days and to busy his mind with bootless trivialities, without any higher mental flights than are required to read aloud the impassioned titles in the movies. If such an one ever cogitates at all upon his condition, he probably admits to himself that he is standing still. On the contrary, he is slipping down the hill of achievement at an alarming rate, did he but know it, and it is only a question of time until he will hit the bottom with a sickening thud. Then, perhaps, he will regain consciousness only to realize the incurability of his mental ankylosis. To be sure he may attend the meetings of health officers and may receive a certain temporary mental stimulation from contact with his fellows and the half-baked oratory which is an inevitable concomitant of such gatherings, but you can't drill a soldier just a few days a year and keep him up to the standard of a first class fighting man. It takes work, it takes thought, it takes honest study every single day in the year to keep any professional man up to his job.

The "live-one" realizes that the community pays him a salary to think, to plan, to execute health maneuvers, to lead his people out of sanitary darkness into the land of health, longevity, and usefulness. If he does not do these things he is a total loss. Any really good sanitary inspector is perfectly able to carry on routine work; any really good clerk can tabulate data and do paper-work; but it requires a broad background of knowledge, much careful training, and a high-powered mental alertness to be a real health officer. There are a lot of jobs which some health officers are trying to do which could be performed infinately better by subordinates. The function of the health officer is that of the coordination of all the forces of his department, the integration of the cogs in the health machine. The "live-one" knows that he cannot accomplish this in a big constructive, broad-angle way unless he studies. He knows that unless he keeps the edge of his mind well whetted on the ideas of other workers, he cannot think creatively, and that he will be unable to meet the demands of a profession which requires up-to-the-minute mental preparedness, a flexible adaptability of meeting conditions which are altering themselves with kaleidoscopic rapidity. Fundamentally, the sanitary profession embraces a wide knowledge, not only of medicine, but of practically every other science as well, and the hygienist who does not keep well abreast of what is going on in his chosen field is soon hopelessly lost. In his studies he must range over a wide area and he must not confine himself to the narrow limits of one single disease-control problem. Diseases are interlocking with each other and with every other thing which concerns human existence and a knowledge of all is necessary to the attacking of one in a really comprehensive way.

There is a wealth of material printed every day on sanitary subjects, a quantity which it is impossible for the busy health practitioner even to skim through. The "live-one" essays as best he can to follow up the literature of his profession, but to do this properly requires a large library of medical publications and much spare time. Then too, there are the difficulties of language, not to speak of the tremendous amount of chaff which must be winnowed to discover a few golden grains of truth. The "Digest of Sanitary and Hygienic Advance" endeavors from month to month to indicate the high lights in our progress and both "live-ones" and "dead-ones" will find in it matter of interest and profit. It is by way of being a prophylactic against "dead-one-ism" and a further stimulant to the worker who is earnestly striving to move forward with the vanguard of sanitary progress.

Paris Green as a Larvicide

An efficient anopheline larvicide is Paris green in the proportion of 1 per cent mixed with common road dust and thrown by hand over breeding areas, the operator standing to windward and relying upon the breeze to disseminate the mixture. Two teaspoonsful of Paris green mixed with twenty-five ounces of dust will control one thousand square feet of breeding surface at the cost of one cent. The application should be repeated at intervals of ten days. The operator should wear gloves. The mixture is harmless to vegetation and does not poison cattle since the arsenic is present as a very dilute surface film and the animal thrusts its nose beneath this film while drinking. Such small quantities of arsenic as may adhere to the nostrils will have no other effect than that of a good tonic.

Delayed Constitutional Syphilis

Almost all the published collections of congenital syphilis deal with the disease in babies or in children under fifteen years of age. Spackman (*Lancet*, cciii, July 8, 1922) reports the treatment of ten cases of delayed congenital syphilis occurring in males, the youngest of whom was twenty-one years of age, the eldest thirty-one and the average age was twenty-one and nine-tenths years. The author believes that *syphilis hereditaris tarda* is not a rare disease condition and should be diagnosed much more frequently in adult life than it is at present. Aortitis and aneurysms may have a congenital origin and need not necessarily be the result of acquired syphilis, thus again affording an example of the fact that it is the innocent who pay, and that persons who have hitherto been considered perfectly well may suddenly present the symptoms of congenital syphilis when exposed to a great physical and mental stress, such as was so frequent during the Great War. At such times a good many apparently healthy men broke down and showed only too clearly a congenital syphilitic taint. Competent, intensive, thorough treatment is essential to recovery; but, even at best, the treatment of delayed congenital syphilis is apt to be most unsatisfactory and disappointing. Interstitial keratitis, iritis, or choroiditis is often one of the earliest signs and is of great importance in the early diagnosis.

Community Dental Hygiene

The Health Officer of Cambridge (England), a city of about sixty thousand inhabitants, in his annual report for the year 1921, records the very notable work which he is doing in the solution of the dental problem of his community. A chief dentist, with

one assistant and two dental attendants, cares for the teeth of all school children (of whom there are about 7,800), does the dental work for all expectant and nursing mothers, and makes a quarterly inspection of the teeth of pre-school children. This is a good example of what may be accomplished by intensive public oral hygiene. Although he does not say so, this health officer must have stripped this work down to bare essentials, since the number of persons receiving dental care was so large—a wise and economical proceeding.

Diagnostic Reaction for Mediterranean Fever

In a note presented to the French Academy of Sciences, Dr. E. Burnet, Sub-Director of the Pasteur Institute of Tunis (*Rev. Tun. des Sc. Med.* February, 1922), proposes an easy procedure in the diagnosis of Mediterranean fever. This consists of an intradermic reaction made with one drops of filtrate of a bouillon culture of the *Micrococcus melitensis.* Until this diagnostic test was brought forward, reliance was placed either on a hemo-culture or the serum reaction, both of which require good laboratory facilities. The intra-dermic reaction has the enormous advantage of being applicable by physicians far remote from laboratories. The positive reaction appears within seven and reaches its full development the following day, persisting for several days.

A BEAUTIFUL CITY WITH DIRTY ALLEYS is like a beautiful woman with unbathed feet.

Good Health Has a Definite Personal Value

Many a man has failed in business because of some wholely avoidable disease and many another has not been able to advance in life because of the cost of a chronically sick family. The banks frequently will not loan money to a person in poor health. In some sections of the country, a sanitary privy is a pre-requisite to a farm loan. Bad teeth, foul breath, a pimply complexion and a generally subnormal condition have been the undoing of many a salesman. Any health officer who will demonstrate these facts clearly to his clientele will do good since there are a good many people who can be stimulated into health habits if they can be made to see that it pays. It is not difficult to demonstrate and measure in mathematical terms the direct relation between community health and community wealth. One of the most graphic ways of accomplishing this is to plot the deaths of the community per thousand of population against the bank clearings of the community also per thousand of population, for the same periods of time. It will be found that with a lag on the part of the bank clearings curve, the two curves will be practically parallel.

The Prevention of Mango Poisoning

Dermatitis venenata occurring in persons who have handled or eaten mangoes is a painful and not infrequent affair in the Tropics. Erythema, edema, macules, papules, vesicles, and pustules followed by scaling, pigmentation, and sometimes by actual scar formation, all very similar to the picture of *rhus* poisoning, occur and it has been held that any part of the tree or fruit may produce these results. This is not illogical since the mango belongs to the order *Anacardiaceae* which also includes such irritant plants as the cashew, the pistachio, poison oak, and poison ivy. Simmons and Bolin (*Am. Jour. Trop. Med.* 1, 6, p. 351) include, after a series of excellent studies, that the lesions are not the result of specific protein skin reactions but are produced by non-protein skin irritant, present chiefly in the stem-sap of either ripe or green mangoes. Mangoes may be eaten even by susceptible persons, without the danger of developing dermatitis, if care is taken to avoid contact with the stem sap. The irritant, which is not volatile, may be removed from the skin surface by the early application of ether, followed by 95 per cent alcohol and a phenol lotion to control the itching. Care should be taken not to spread the irritant by the ether or by the use of fatty ointments.

Occupation and Cardiac Disease

Cardiac workers need not necessarily be limited in their occupation to sedentary pursuits, provided that the type of their occupation is selected and gauged by the condition of the individual's myocardium. Moon (*B.M.J.*, May 20, 1922) is of the opinion that it is important to determine how far a given work suits the man, *i.e.*, how well he is physically tuned to it, how well he likes it, and the wages therefrom. In deciding the future occupation of the cardiac boy, sedentary work is advisable, since recurrent attacks may occur and boys are apt to overstrain themselves at heavy occupations. Education, training, mental equipment, and temperament are important factors to be considered in making the choice. The important thing is to leave a margin of safety. Mental and emotional stresses are almost as important in the production of cardiac breakdown as physical exertion.

THE HEALTH OFFICER who does not keep his community well vaccinated is like the mariner who navigates without lights.

Liability of Cholera Vibrio in Sea-water

Various investigators have reported that cholera vibrios survive in sea-water from seven to one hundred and twenty-two days. Flu (*Med. den Burg. Geneesk. Dienst in Ned.-Ind.*, 1921, 3, p. 317) who has studied the question in the Bay and Port of Tandjok-Priok, found that cholera vibrio and typhoid bacilli preserved their vitality uniformly from four to five days. The dangers of bathing or of washing clothing in sea-water contaminated with vessel or shore sewage are, in view of the facts, therefore apparent.

Yaws in the Philippines

The Commission for the Suppression of Yaws in Parañaque reports its results in 275 carefully studied and treated cases in the *Monthly Bulletin of the Philippine Health Service*, (Vol. II, 2, p. 35 et seq). This well illustrated document shows that 94.5 per cent of the cases were clinically cured, 2.5 per cent were improved and 3 per cent of them were not improved or recurred after treatment. "Out of 258 cases in which the mode of infection was recorded, in 132 the disease was contracted from relatives or playmates. A close personal contact, therefore seems necessary." Many of the cases coming to the clinic were still infected with scabies and not a few of the mothers insisted that the infection started from these lesions. It is therefore not outside the realms of possibility that the scratches [illegible] may have been the vehicle of transmission.

THE NATION'S HEALTH

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The Ideals and Objectives of The Nation's Health

THE two years and more which have passed since THE NATION'S HEALTH established its journalistic service to the field of public health have served only to strengthen the conviction that there is a definite place for a magazine of the type which its founders had in view; and the editorial reorganization announced in the present issue indicates no fundamental change of policy but rather a progressive development along the lines already laid down.

The modern public health campaign is still in the state of flux which characterizes every new movement. The actual application on a large scale of the technic of disease prevention is still only in its beginnings. The financial resources at the disposal of the health executive are likely to be trebled and quadrupled within the next two decades and the machinery for correlating preventive procedures and for controlling the commoner and subtler dangers which threaten the health of the community is being worked out experimentally in various cities from year to year and from month to month. It is of the utmost importance therefore, that news of successful ventures in public health practice should be disseminated as promptly as possible to those who may be interested in imitating them, so that such practice may be developed and standardized as rapidly as possible.

Furthermore, it is clear that the progress which is taking place in the field of public health is tending to produce fundamental changes in the relation between the physician and the community, since the newer lines of health work so often involve the organization of medical services for the early diagnosis and preventive treatment of disease. Even those who are most opposed to what is vaguely termed "social medicine" realize that changes of some sort are imminent, and it is of vital importance to the public, as well as to the physician, that such change be made along lines which will maintain the high intellectual and moral standard and the freedom of initiative which have been the glory of the medical profession, while at the same time recognizing the need for medical organization and the application of medical science to prevention as well as to the amelioration of architecturally completed disease.

The NATION'S HEALTH, in furnishing a forum for the open discussion of the advantages and disadvantages of such practical advances as may be made from time to time, will be bound by no *a priori* theories of policy. It will be guided only by the conviction that machinery for the promotion of health should be very greatly expanded and that the work of the medical profession should, in whatever fashion pleases best, be so correlated with the public health campaign as to become as effective as possible in the prevention and early treatment of disease.

We shall not attempt, on the one hand, to compete with several organs now in the field for the presentation of original research problems in hygiene, either community or industrial; nor on the other hand shall we attempt to appeal to the general lay public. The aim of The NATION'S HEALTH is to be a magazine of current information in regard to practical progress in the public health field for public health officers, physicians engaged in infant welfare, school hygiene, antituberculosis work or other fields of preventive medicine, public health nurses and social workers, for industrial physicians and industrial nurses, and for institutional authorities and others responsible for the health of groups of individuals. It will hope to supplement the highly specialized appeal of such organs as address themselves specifically to the medical profession or to professional workers in public health, nursing, or allied fields by a comprehensive survey of the whole field of community health promotion, free from the necessary limitations which accompany the advantages inherent in the official representation of an organized professional group.

Through the cooperation of a widely representative group of advisory editors we trust that the

picture of the public health movement to be presented may prove to be a comprehensive one. We can only succeed to the full, however, with a still wider support; and we appeal to every reader of The NATION'S HEALTH to aid us by counsel and criticism in order that we may realize our ideal of playing a real part in furthering during coming years the development of an effective community program for the upbuilding of a physically sound and strong American people.

Federal Aid for State Public Health Activities

WORK for the promotion of the health of mothers and infants is now going forward in thirty-nine states under the provisions of the Sheppard-Towner Act; and the act has been accepted by three other states.[1] The Legislatures of Louisiana, New York, Massachusetts, and Rhode Island have refused aid under the act, and in Maine the Governor has issued a special proclamation rejecting it. Washington has not yet expressed itself one way or the other.

The opposition to this measure which has developed in certain New England states and in New York is a curious psychological phenomenon. The principle of Federal aid to local activities has been an accepted one ever since agricultural experiment stations all over the country were started in 1887. No possible surrender of state authority can be involved since the only limitation on the use of the funds lies in the provision that the plans for spending the money must be approved by the Federal Board of Maternity and Infancy and if there were any chance of unreasonable dictation (which there is not) the state could of course withdraw at any time from its cooperation. That the objectives in view are sound and that there is money available for their pursuit is indicated by the fact that Maine, Massachusetts, and New York, while refusing the Federal money offered to them have made special appropriation to carry on for themselves the special work contemplated under the Sheppard-Towner Act, thus recognizing its essential wisdom.

There seems indeed to be little intelligent basis left for opposition to the Sheppard-Towner Act or for any resentment against Federal initiative of the sort which it represents. After all, the government at Washington is not an alien tyranny but as much a part of our own political life as the government of our states and cities. To the public health worker the type of Federal leadership exemplified in this bill is full of promise. The system of national grants for cooperative local health activities is basic in the magnificent system of Great Britain. Under the Chamberlain-Kahn Act the same procedure was used for the upbuilding of venereal disease clinics in a way which constituted one of the most notable public health achievements ever accomplished in this country; and the Sheppard-Towner Act is likely to yield results of even greater magnitude not only in the states which have accepted it but also in those which while rejecting Federal aid have been forced by the act into making their own appropriations for carrying out its purposes.

[1] Thirty-one states by provisional gubernatorial acceptance; 11 by legislative action.

Personality in Public Health Publicity

A KITCHEN table will fly if given adequate and suitable motive power. Any fool with sufficient bicepital development can sail a kitchen table a short distance through the air but it will hit the ground with a crash that probably will demolish utterly that humble piece of household furniture. It takes imagination, brains and application to rig a machine which will lift a kitchen table from the floor and make it fly safely to a given destination.

Similarly, public health will fly if given adequate and proper publicity but it requires imagination to present it to the public in palatable form, brains to know what are the important things to stress in the propaganda, and an intense application to maintain the flow of necessary and valuable matter. The old days of public health exhortation are passed and the modern health propagandist has learned to bait his hook in such a way as to secure the greatest number of "nibbles" and "bites." The campaign of education by publicity has now reached a highly technical stage.

Any fool can brazenly crowd his public health ideas into the public prints for a while, and if he keeps at it with sufficient news-sense, it is surprising how long he can keep handing out spectacular tosh. As a rule, such a one is not seeking public health publicity but is engaged in personal propaganda, and sooner or later he tries it once too often, only to have the propaganda which was to have served as stilts to lift him artificially above the herd, transmute itself into a boomerang to injure him who hurled it.

There are certain symptoms upon which an almost infallible diagnosis may be made between public health propaganda and personal propaganda. Good health propaganda is largely impersonal so far as the author is concerned. It tells the facts in a convincing way, in simple language which even a child may understand, and with the

punch of the story in the first seven lines. It takes a single idea and it hammers, hammers, hammers on it until it drives it deep into the public mind and clinches it there ineradicably. Sometimes with humor, sometimes with bald, rude strokes, sometimes by gentle insinuation, it strives to sink home a lesson in personal or community hygiene but always the big idea is the health salvation of the public.

On the other hand, when a news story begins, "Health Commissioner Jones said today that ingrowing toenail constitutes a serious health menace," or "That ingrowing toenail is a health hazard to future generations," was the keynote of the address of Smith Brown Jones, M.D., Health Commissioner of Squedunk today, or "Care for the feet if you care for the future" was the slogan presented by Health Commissioner S. Brown Jones to the Interurban Shoe Manufacturers Association today, it is highly evident that Jones is getting in a few good licks for Jones primarily, and for the public incidentally.

In all fairness though, it should be interpolated, that there are some personalities which in themselves are news and a health worker should not be classified as an autogenous advertiser merely because his name adorns the public prints at frequent intervals. Some people are always a good story. Their simplest act contains that intangible dramatic, histrionic, arresting quality which always excites interest. Theirs is the privacy of a bird in a cage, and if one of these unfortunates remarks that "it's the humidity we feel rather than the heat" or happens to shoot a birdie on number four, it becomes copy at once for the news-grubber. This type of man is often far more entitled to our sympathy than our censure and he is frequently a great asset in a health publicity campaign since he can always attract immediate attention through the press, but for that other for whom he is so often taken, that brazen, climber-sanitarian, that indefatigable limelighter, crowding out the baseball news with his blatancies and assaulting our intelligence with half-baked truisms and purloined truths, there is no inferno too deep.

There is an opposite type, quite as filled with conceit and infinitely less valuable to the health education of the public than either of the types described above. It is the self-contained, repressive prig, masking his overweaning self-esteem with hypocritical modesty, the man who doesn't believe in health advertising, or in the use of the simple vocabulary of the flivver-driver, who considers it *infra dig.* to approach the public through the avenues of the press, who has nothing but a sneer for the worker who is seeking to make health an humble household word. Such a man is a brake on the wheel of progress.

As a matter of fact, a combination of these three types is about the ideal. The personal publicist, the arresting personality, and the conservative type which never holds its cards save at the vest, these balance and counterbalance one another, checking the on-rushing ego of the one, tempering the picturesqueness of the other, and stimulating the inhibitionist to the promulgation of the doctrine of clean, safe, healthy living.

Autogenous Smoke Consumption

THE greatest of all human problems is the handling and treatment of the human sick, greatest because it is so human, and unless it is approached with a deep appreciation of the human factors involved, its solution is difficult if not well-nigh impossible. The French, with an apt facility for coining adroit phrases, speak of "putting one's self in the other fellow's skin." This means more than getting the viewpoint of another, more than seeing eye-to-eye with him, more than making your mind walk hand-in-hand with his. It means the attuning of yourself so completely with your fellow men that you will know the things which will harm him, the things which will grate upon him, and the things which will anger him. It means a knowledge of his weakness and his strength without unkind analysis, an understanding of his mental processes and reactions. From this flows the corrollary of doing nothing which will harm him, grate upon him or anger him. It is a quality all too rare in those who come into contact with the sick. Its possessors are the successful physicians, hospital administrators and nurses, while those who have it not are the misfits of the profession.

How easy it is to lose sight of the fact that the great bulk of the hurts which we inflict upon others and which others inflict upon us are not intentional or preconceived, but rather are they the result of carelessness—the quality of caring less for our fellow than we should. It is a very easy matter to wound a sick person with an idle phrase or perhaps even to turn the tenure of his life with an idle jest. To the nurse or doctor, "putting yourself in the other fellow's skin" means, so far as the patient is concerned, the minding of one's own business strictly to the exclusion of gossip, the guarding of speech and comport with careful consideration for his feelings and reactions, the regarding of his weaknesses with the kindly eye of charity, and the living and working with the sick in harmony.

Closely akin to this is the ability to consume your own smoke. This partakes of the quality of equanimity. It is the characteristic of taking the buffetings of life without whining or self-pity. It is the sign of adult development and the doctor or nurse who lacks it would do well to learn autogenous smoke consumption instead of belching it forth in black and noxious clouds, remembering that there is just as much smoke to be purified in the sweet moment of success as in the bitter hour of defeat and that the smoke of victory is even more offensive than that of failure. Furthermore, students of thermo-dynamics have long ago learned that the black clouds of smoke indicate a frightful waste of energy and sanitarians know the disastrous effects supervening upon continuous exposure to smoke, which in addition to being an extravagance and a health menace, is an infernal nuisance. People may, to a certain extent, be measured by this yardstick. Some run along so smoothly, without friction or a hot bearing, and with so little evidence of any combustive process that they may be classed as thoroughly efficient machines. This is the ideal attitude of those who treat or nurse the sick. Others creak with every added load, no matter how small, and fill their entire environment with the vaporings of their half-stoked fires. Their place is far from the bed of pain, distantly remote from the places sought by the sick seeking relief from physical and mental distress.

The Journal of Personnel Research

THE first issue of *The Journal of Personnel Research*—which made its appearance in May promises well for the future of the Personnel Research Federation, whose official organ it is, and for its value as a tool in the hands of editors, administrators, and students everywhere who need to work with and understand human beings. Reasons both scientific and practical for personnel research are presented as the leading article by James R. Angell, president of Yale University, and Alfred R. Flinn, secretary of the Engineering Foundation and of the Personnel Research Federation, gives a brief history of the development of the Federation, of the several agencies united in the project, and of the different lines of work at present under way, while the basic principles of vocational guidance are treated by C. S. Yoakum, Carnegie Institute of Technology. To quote Yoakum, "the problems of personnel are dependent for their solution upon many investigators working in many communities. These solutions will be expedited if the investigators are in communication, and if their work is coordinated."

The Foundation is designed to bring about such coordination. Interest in the subject of personnel will be quickened, science will be substituted for ignorance, and intelligent choice for haphazard selection when the results of personnel research are properly interpreted and generally applied. We approve the enterprise and commend the journal.

Laveran, 1845-1922

METHODICAL, indefatigable industry, stimulated by a Gallic imagination and a high moral courage tempered by a scrupulous, scientific honesty was the outstanding feature of the character of Laveran whose life of wonderful accomplishment has only recently drawn to a close. He gave to the world the mastery of the disease which caused the decadence and fall of Greece and Rome and opened the most insalubrious regions of the world to the enterprise of man. As a result of his labors the Panama Canal became an actuality and great fertile but uninhabited areas in many parts of the world which lay waste by reason of an eon-old endemic, were opened to colonization and transformed into healthful and productive gardens. His discovery of the causal agent of malaria blazed the trail to the rational prophylaxis and eradication of the disease thus constituting a basic addition to the sum of human knowledge and another safeguard to human existence.

Science has lost one of its most illustrious servants and France one of the most brilliant names which ever illuminated the already dazzling page of that nation's scientific achievements. That simple, modest son of an Army Medical Inspector, alumnus of the School of Strassburg, teacher and director at Val-de-Grace, army medical officer, worker at the Pasteur Institute, labored in the cause of humanity to the end of his seventy-seven years and, weighted with every honor which science and a grateful world could bestow upon him, passed into the company of the medical immortals, leaving behind him a world which was safer and healthier than he found it, a name which will never be forgotten, and an example for all who would serve their fellowmen.

From the beginning of his medical life, Laveran set for himself the invariable rules of punctual, methodical work each day, scrupulous care in the fulfilling of his scientific and moral duties, tenacity in research and exactness in observation, and an invariable probity in the expression of that which he had seen and proven. In 1875 he

published a treatise on "The Diseases and Epidemics of Armies," growing out of his lectures at Val-de-Grace, and on November 23, 1880 presented to the Academy of Medicine his first note "Upon a New Parasite Found in the Blood of Many Patients Attacked by Palustral Fever." This note and those following it, addressed to the same body, and to the Academy of Sciences, passed almost unnoticed in France at the time but today they are considered historical events of the first order

Pasteur was revolutionizing medical doctrines. The causation of disease by the multiplication of a living virus in the living body had captured the imagination of the scientific world. Microbes, bacilli, bacteria, micrococci were being everywhere sought and the Italian physicians, following the methods of Pasteur were describing a bacterial cause of malaria. Laveran, after an excellent training in microscopy, had just been sent from Val-de-Grace to Algeria where malaria was the dominant endemic. The melanemia of the patient was then the enigmatic signature of paludism and Laveran attacked the problem with the idea of discovering how this pigment was formed. In the course of his daily examinations he observed near the melaniferous leucocytes, spherical, hyaline, corpuscles, non-nucleated and pigmented and in very characteristic crescents. "I had seen these things in my examinations," said he, "and I hesitated to believe that these elements were parasites. However, on November 6. 1880, in examining the spherical, pigmented bodies, I observed from the borders of many of them mobile filaments or flagellae having extremely active and varied movements, thus leaving no doubt as to the animal nature of these elements."

This conviction grows from day to day as he notes the constant presence of these same elements in the blood of patients suffering from malaria. He collects his data; he describes and draws the organism with his customary sincerity; he announces without hesitation its specificity, an act requiring a splendid audacity and self confidence thus to announce the discovery of the first example of a sporozoon pathogenic for man, a new and unclassified organism. Naturally the idea was received with scepticism and incredulity. Laveran with perserverance and unshakable faith accumulated further facts and confirmatory data from many parts of the world and on December 30, 1889, the Academy of Science voted him the Breant prize.

After the discovery of the hematazoon of malaria, Laveran sought to ascertain its residence outside the body of the sick, its manner of leaving its habitat to infect the well, the agency by which malaria is spread, and in 1884, reasoning from the discovery of Sir Patrick Manson that mosquitoes spread filiariasis, he suggested the existence of an intermediate host in malaria. Followed the work of Ronald Ross, of Bignami and Bastianelli, of Grassi, of Manson and Ross and of many others, and the prophylaxis and eradication of malaria was placed upon a scientific basis and became wholly realizable.

Laveran was elected to the Academy of Medicine in 1893, to the Academy of Sciences in 1901, and in 1907 received the Nobel prize. From 1896 to the day of his death he worked at the Pasteur Institute on the pathogenic protozoa of man and animals and in 1912 published his very valuable work on the subject. The War found him too old for service with the colors but he continued without intermission his labors in the almost deserted laboratories and in 1917 published his splendid book on Leishmaniasis. He founded the Society of Tropical Pathology and presided over its destinies for twelve years and at the time of the centenary of the Academy of Médicine he was its President. Retiring in 1921, he continued nevertheless to follow and direct his research laboratory at the Institute and death alone was able to impose upon this indefatigable worker a definite rest.

Mr. Lapp Retires as Managing Editor

THE October issue of THE NATION'S HEALTH marks the retirement of John A. Lapp as managing editor. While this of necessity implies a diminution of direct activity and a relinquishment of immediate responsibility, we are glad to say that the presence of Mr. Lapp in an advisory capacity on the editorial staff of Dr. Winslow, assures for our readers the same security in matters of medical legislation and jurisprudence, and the same authoritative sources of social survey that have given character and balance to his editorial work in the past. To the soundness of his judgment and the clarity of his vision much of our prestige is due, and it is a matter of much satisfaction that freeing him for wider activities does not divorce him from the future of the enterprise he has so ably directed in the past. The present change is the culmination of his well laid plans and it is expected that the reorganization now in effect in the editorial board of THE NATION'S HEALTH will give greater force and better unity to the presentation of public health materials, and provides an unusually able advisory board for comprehensive survey of related social and scientific fields.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

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The Hazards of Carbon Monoxid Poisoning*

Preliminary Sanitary Studies Are Best Basis for Safety Engineering

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WITH every advance in industry and the arts there is liable to be associated some new physiological strain or health hazard. This has been true of machinery, of the chemical industries, of electricity, of illuminating gas, and it is now proving true of man's latest and most widely used utility, the automobile. The risks involved with the automobile are, however, almost universal. The loss of life in accidents, as reported in the daily papers, is so common that it is receiving serious attention, although effective measures of amelioration have not as yet been adopted, as every one knows.

It is not very generally realized that the exhaust gas from automobiles constitutes scarcely a less serious hazard. Fortunately, however, engineers are beginning to recognize that the sanitary side of large public undertakings and even of some private developments deserves study, and the public is learning to expect this protection. Accordingly, when plans were made for the construction of the first long vehicular tunnel in this country these plans included extensive investigations of the basic facts necessary to the ventilation of such a tunnel, so as to render the air not only safe but practically innocuous to its passengers. This is of special importance, as such tunnels will probably, to a considerable extent, replace bridges in the future, both because of their cheaper construction and because they do not obstruct the waterways.

The commissions of the states of New York and New Jersey charged with the construction of the vehicular tunnel, or rather tunnels, under the Hudson river at New York arranged with the United States Bureau of Mines to undertake these basic investigations. The work was divided into several special problems, of which we need here consider only two, namely: (1) The amount and chemical composition of the exhaust gas produced by various cars under various conditions of speed, load and temperature, and (2) the physiological effects of the substances in exhaust gas and their allowable amounts not involving appreciable ill effects when such gases are breathed.

Sacrifice to Secure Speed

The first of these problems was placed in the charge of Mr. A. C. Fieldner at the Bureau of Mines Experiment Station in Pittsburgh. An extensive investigation carried out by him and his collaborators has shown that to a large extent the deleterious character of the exhaust gas of automobiles arises from the tendency of drivers to adjust carbureters so as to afford a maximum of power rather than to utilize fuel with the maximum efficiency. The gasoline mixtures used are generally much richer than would be best, both from an engineering and sanitary standpoint. More easily adjustable carbureters and greater use of the adjustments so as to attain the required speed and power with a minimum of fuel would not only result in reducing the waste of gasoline but in an exhaust gas distinctly less injurious to health. These investigations show that approximately one-third of the fuel value of gasoline is wasted and that the carbon monoxid, the particular toxic constituent of exhaust gas, averages about 7 per cent.

As regards the total quantity of exhaust gas produced, it is sufficient to say that most passenger cars, with the usual carbureter adjustment, produce from 1 to 2 cubic feet of carbon monoxid per minute. This, in my opinion, could be and should be greatly reduced. Indeed, if the air in crowded city streets is not to become even worse vitiated than at present, passenger cars and trucks must be so constructed that their drivers will themselves feel the need and advantage of varying carbureter adjustment in traffic and on hills almost as freely as a driver now moves the throttle.

The second problem above mentioned, the strictly sanitary problem, which was assigned to me for investigation was worked out with the collaboration of Dr H. W. Haggard and Dr. A. L. Prince in my laboratory in Yale University. Our investigations have completely confirmed the conception of Haldane, the great English investigator, who has done so much to

*Read before the eleventh annual meeting of the National Safety Council, Detroit, Mich., August 31, 1922.

decrease injuries and fatalities among coal miners, that carbon monoxid does not form a permanent compound with the red coloring matter, or hemoglobin, of the blood, but competes with oxygen. The affinity of carbon monoxid for hemoglobin is about three hundred times as great as that of oxygen and it is capable, therefore, of rapidly displacing oxygen from the blood and causing asphyxiation and finally death. But by a reversal of the competition, carbon monoxid can be again displaced by oxygen when a person who has absorbed a certain amount of gas breathes pure air or air enriched with oxygen. Our investigations also show that carbon monoxid has no other toxic characteristics except its combination with hemoglobin and exclusion of oxygen; it has no direct effect upon nerve cells. All of the nerve degenerations induced by carbon monoxid are due to asphyxia. Dr. Haggard has indeed even succeeded in growing pieces of chick brain (taken directly out of an egg and suspended in a little chicken plasma) in considerable amounts of carbon monoxid. Animals such as flies and other insects which have no red matter in their blood are entirely immune to carbon monoxid.

Our investigations show further that when gasoline distilled from petroleum is used, practically the only toxic constituent in the exhaust gas is carbon monoxid. When, however, benzol and probably other related substances are present, as in some of the automobile fuels now sold, the amount of these substances escaping in the exhaust gas adds decidedly to its toxicity.

Our investigations were carried out at first on ourselves and the other members of the investigating staff in an air tight room lined with sheet iron. The data so obtained were later confirmed by large-scale experiments in which a dozen or twenty people at a time sat or moved about in a garage building in which a Ford car was installed. A drop of blood was drawn from a finger and analyzed for carbon monoxid, the pulse was counted, the volume of respiration measured and the effect of exercise, after running up and down four flights of stairs, was noted. A test for steadiness was also used, for in carbon monoxid poisoning the victim is quite often unaware that anything is wrong until his legs give way and he falls, unable to rise again.

The best of all indications proved, however, to be the headache induced by carbon monoxid. This is a characteristic oxygen deficiency phenomenon, observed at great altitudes, on mountains, or after high airplane ascents. It is induced in nearly all persons by certain degrees of saturation with carbon monoxid, although there are some individual differences in the exact point at which it appears. It is usually of the throbbing frontal type, more rarely occipital. It easily passes into nausea, vomiting, and prostration and is accentuated by exertion. Men in this condition lose judgment and self-control, they may become hysterical or even violent; often they behave as if under alcoholic intoxication. The time at my disposal today forbids a detailed description of theory or experiments, but data were obtained sufficient to allow the scientific law controlling the absorption of carbon monoxid from the air in the lungs to be formulated, so that we now know precisely the conditions involving slight and great danger and also the conditions which are safe and practically harmless.

Rules Derived for Use

From this law the following rule was derived for practical use: When the time is expressed in hours and the concentration in parts per 10,000 there will be no appreciable physiological effect when the product of the time is multiplied by the concentration equals 3; when the product of time by concentration equals 6 there will be in some persons slight effects; when it equals 9 there will be in nearly every one a distinct effect; when it equals 15 the condition is dangerous. A concentration of carbon monoxid not exceeding 4 parts in 10,000 (that is four cubic feet of carbon monoxid in 10,000 cubic feet of air) is therefore recommended as a practical standard for vehicular tunnels. This involves an enormous ventilation and force to maintain it, but is said by engineers to be entirely feasible.

It is quite certain that this standard is very often exceeded in garages and automobile repair shops where, unless there are special provisions for ventilation, high concentrations of exhaust gas are common. Severe headaches are extremely frequent among mechanics and others who work around automobiles, so much so that repeated partial asphyxia today is a distinct health hazard in this field.

Our observations indicate also the character of the hazard in the small private garage. During the winter months, in the northern states, fatal asphyxiations in such private garages are unfortunately quite common. The owner starts his car before opening the doors, in order to get the engine warm. If the garage is 10x10x20 feet, giving a capacity of 2,000 cubic feet, and the car produces one cubic foot of carbon monoxid per minute it requires only one minute for the concentration which we have recommended for the tunnel to be reached and in five minutes the atmosphere contains 20 parts of carbon monoxid in 10,000 of air—an amount sufficient to induce asphyxiation. Of course, if the car continues to run the concentration mounts steadily toward a rapidly fatal amount.

In addition to our experiments on men, which could not, of course, be pushed beyond the point of severe headache, we performed an extensive series of experiments on animals which we carried to the point of extreme or even fatal asphyxiation. These experiments were performed with pure carbon monoxid, with exhaust gas from automobiles, and with illuminating gas. They show that while carbon monoxid is practically the sole toxic constituent in exhaust gas from pure gasoline, the gasoline now sold in some places mixed with coal distillate containing benzol, produces a much more toxic exhaust gas.

Gasoline vapor itself has been found in our experiments to have qualities somewhat like those of the ethyl ether used in surgical operations. It is an anesthetic, but the initial stage of excitement passes through a very narrow region of full anesthesia into convulsions ended by death. In the toxicity of exhaust gas, unburned gasoline is not an appreciable factor. Workmen are, however, sometimes overcome when they go into a large tank in which gasoline has been stored. Benzol is much more toxic, as Dr. Alice Hamilton has recently pointed out.

Our investigations with illuminating gas have shown that, while the principal toxic constituent is carbon monoxid, about 20 to 25 per cent of the toxicity is due to benzol and related substances. These substances are to a large extent the illuminants which the laws of many states still require to give luminosity to the gas flame, a requirement which the introduction of the mantle burner has made unnecessary. From a health standpoint this requirement is now perhaps even unwise.

These investigations have also led us on to the study of the treatment of carbon monoxid poisoning. Obviously, the first step in any treatment must be the restoration of spontaneous breathing if it has stopped. For this purpose the manual prone-pressure method of artificial respiration is to

be recommended above any apparatus, for it is as effective or even more effective than apparatus and it can be applied instantly, while the bringing and adjustment of apparatus involves delay. A delay of even a couple of minutes after breathing has stopped may sometimes be fatal and a quarter or half an hour always fatal. This delay has probably cost more lives than such apparatus has ever saved and many such lives might be saved if everyone were trained to perform the manual method.

The next step after restoring spontaneous breathing is to accelerate the elimination of carbon monoxid from the blood. For this purpose the inhalation of oxygen has long been recognized as the specific procedure. But the difficulty arises that after a long exposure to an atmosphere containing carbon monoxid, respiration is very much depressed and the inhalation of oxygen has no stimulating effect upon the volume of breathing. It occurred to us to utilize the stimulating action of carbon dioxid, or carbonic acid, the gas used in soda water and other carborated beverages. In a series of experiments on dogs we found that in animals which were brought almost to the point of death and then allowed to recover spontaneously in air the period of elimination of carbon monoxid from the blood required several hours. When the subjects were made to inhale oxygen the rate of elimination was at first not very much more rapid, the reason being that the oxygen was inadequately inhaled. When, however, a small amount of carbon dioxid was added to the oxygen a very active breathing was induced, by which the lungs were so effectively ventilated and the oxygen was given so free an opportunity to act upon the blood that after a period of a quarter to half an hour nearly all of the carbon monoxid had been eliminated from the blood.

Recently the American Gas Association, representing the illuminating gas interests of the country, requested Dr. C. K. Drinker of the Harvard Medical School to organize a commission for investigation of the subject of resuscitation from illuminating gas poisoning. Dr. Drinker invited my associate, Dr. H. W. Haggard, and myself to serve on this commission and the American Gas Association has generously supplied the funds needed for a thorough investigation of the efficacy of the above mentioned treatment. The Consolidated Gas Company of New York City gave us invaluable assistance by placing at our service its emergency auto trucks and their crews. Health Commissioner Copeland and the hospital authorities of New York City gave us their cordial support and cooperation. We were thus able to apply the method to a sufficient number of cases of illuminating gas poisoning to show its efficiency.

The results in a majority of cases were even better than our laboratory experiments had been. Asphyxiated patients who were reached within half an hour—and the utmost speed at this time is essential for success—and who were given an inhalation of oxygen containing 5 per cent carbon dioxid were practically freed from all but the merest trace of carbon monoxid in their blood within twenty-five to thirty minutes. Frequently, also, consciousness returned within this time and within a few hours the patient was practically well again. It is also noteworthy that not a single patient thus treated developed pneumonia, which is so common after gassing, nor any of the other distressing sequelae sometimes associated with poisoning by illuminating gas or the exhaust gas of automobiles.

There are thus solid reasons for the expectation that with the general introduction of the oxygen and carbon dioxid inhalation, fatalities from carbon monoxid may be very considerably decreased and its after effects largely eliminated.

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Feeling Tone in Industry

PAIN and fatigue are the physical and psychic conditions we are endeavoring to avoid throughout our lives. The absence of pain must be assured by a sense of physical well being and by safe and sane working conditions before work itself is undertaken, and during the progress of the day's work any undue sense of fatigue on the part of the worker is registered objectively by the decreasing amount of work done, or by its falling off in quality. B. Muscio[1] declares, however, that feelings of fatigue are not reliable criteria of the capacity to work, for increasing and not decreasing amounts of work may be done under conditions of fatigue; conversely, the work may deteriorate both in amount and quality prior to the onset of feelings of fatigue. The feeling of fatigue, therefore, has been abandoned as a possible fatigue test and also is now disregarded in investigations of characteristics of normal working activity.

This is not saying, however, that feelings of fatigue bear no relation to activity or to output. Data were obtained by Muscio from two groups of women: (1) Twenty women medical students in work exclusively mental over a period of five days; and (2) fifteen women typists over a period of three days. The subjects naturally were not trained in self-observation. In the typists the output curve increased steadily throughout the first part of the morning notwithstanding increasing feelings of fatigue. Otherwise there was a striking similarity in output curve to the curve for feelings of fatigue.

The natural response to feelings of weariness is to slacken effort or to cease work altogether, which leaves the explanation of the output not being in agreement with the fatigue curve to the operation of incentives and warming up (dynamic relation to the will of the worker). Extraneous incentives, however, fail when the work becomes obviously painful. The degree of fatigue before a slackening of work occurs differs in different individuals, and for the same person it differs at different times, but generally it will be related directly to the strength of incentives.

These feelings of fatigue may play a far greater part in normal work than current "fatigue" investigators, engrossed with physiological problems, recognize. Muscio suggests that "feelings" generally, and not merely "feelings of fatigue" should be accorded more notice in connection with various sides of industrial life than they at present receive.

1. Feeling Tone in Industry: B. Muscio, Brit. J. Psychol., October, 1921.

Simmons College announces a two year pre-medical program arranged to meet admission requirements of Class "A" schools.

New Jersey Industrial Rehabilitation Clinics*

By GENERAL LEWIS T. BRYANT, Commissioner of Labor of New Jersey, Trenton, N. J.

THE subject of "Industrial Clinics," cannot well be covered without a word or two regarding the system under which the Department of Labor of New Jersey is operated. This is especially necessary for the reason that the principal parts of my address will consist of describing several branches of activity, which are so closely related to the one fundamental principle under which we are working; that is, to take the worker as we find him and, first, physically rehabilitate him to the fullest extent possible, equip him with artificial limbs or other appliances, then give him such training as his disability will permit, and then, place him in such a position as will enable him to earn his living—not as a mendicant, but as a self-respecting citizen in competition with his fellows.

New Jersey was one of the original states to pass a Rehabilitation Act. It was drawn so as to give the Commission tremendous latitude in working out its methods. The Commission, having no precedents to follow, approached the subject from the purely educational standpoint. However, the more we went into the subject, the more we became convinced that our job was not merely to rehabilitate the man so that he could go out and earn his living in spite of his handicap, but, by means of an operation, therapeutic measures and esthetic appliances to make the man physically better so that he would be capable of filling the position that he had previously filled, or some position closely allied to it.

The next step in the course of our evolution was the discovery that the class of cases that should receive the attention of the Rehabilitation Commission was largely of the class of cases annually coming before the State Compensation Board. We have from twelve to fourteen hundred cases reported monthly as being sufficiently disabled to come within our schedule. We divided the state into five districts and placed in each an Industrial center consisting of a court room where the compensation hearings are held, the offices of the Rehabilitation Commission and the factory inspection of that particular district. There are also located there the public employment offices and one of the clinics.

*Read before the Fifteenth Conference of Pennsylvania Industrial Physicians and Surgeons, Harrisburg, Pa., May 25, 1922.

To this center the industrial worker comes to ascertain the extent of money compensation to which he is entitled. He comes with the injured hand, the injured back, or whatever may be the cause of his physical handicap, and goes before the administrator for an adjudication of his compensation claim. The Chief of the Industrial Clinic is also the adviser of

Fig. 1. The man pictured herewith was a victim of an industrial accident. After several months of baking and massage and after being fitted with a sacro iliac belt he was able to resume work.

the Compensation Administrator; and before the latter will give a money award, he has the man examined by the Chief of the Industrial Clinic, who advises, first, as to whether it is possible, by further operation, electricity, massage, or the use of apparatus for physical reconstruction, to return some percentage of the usefulness of the worker. If that is, in his judgment, possible, the commissioner will first insist on having the man return to the clinic and be placed under the care of the state and improved to the greatest extent possible before he will take up the subject of compensation.

After having been reconstructed and rehabilitated to the fullest extent, —and, in many instances, before the rehabilitation is undertaken — the Commission makes a study to see what is possible for the man in the way of a return to usefulness. Visits are made to the hospital once a week to ascertain whether there are any patients in the hospital who need the advice of counsel as to their possibility of securing compensation awards, or whether it is possible to be of any welfare assistance to them. A study is made of their cases, and the men know when they are ready to come out of the hospital and face the world again in their maimed condition that they will have someone to whom they can go for counsel and assistance.

The next step is the question of placing the man, woman or child in a suitable position after he or she has been reconstructed in the best possible way. Those engaged in work on sociological lines, or on placement work, endeavor to get in contact with the industries. This, in my opinion is the one feature of the rehabilitation work which clearly places this problem within the realm of industry. It is a problem of the conservation of the human element under the operation of our various labor departments even more than under the educational regime. For conservation ultimately implies the best possible adaptation of the handicapped man with the least possible disturbance of his acquired habits, or shifting him from the industrial occupation in which he was engaged prior to his injury.

I do not know of any one thing in our industrial life which has been performed with less efficiency than the old system of hiring and firing a man looking for a position and wasting his time, when there were thousands that wanted that particular class of worker. I believe that there should be a clearing house where the men wishing to hire a particular type of worker can inquire whether a worker is listed there for that particular type of employment. That can be accomplished only if you have the confidence of the employer, and also the confidence of the labor element of the country. We believe that we have worked out a system where there is a relative degree of confidence in our work.

We have been required to work in the early hours of the day because in the early hours the largest percentage of the work of the office is accomplished. Working with the employ-

Fig. 2. Same patient as in Fig. 1 wearing sacro iliac girdle physically rehabilitated and doing laborious work.

ment officer, we become acquainted with the employers, and know better the character of openings existing in the community. This information makes the Rehabilitation Commissioner much better able to discharge his duties.

The department which is best calculated to be of direct benefit to the men is the Factory Inspection Service. From these centers radiates the work of the Factory Inspection Department in these communities; and we have made arrangements that if the Commissioner wishes to see where he can obtain a certain class of employment, he can have access to factory lists and discuss with the men the plants which can employ that type of worker. Owing to the peculiar position in which the Factory Inspector is placed, he can get a better hearing than any other man connected with the work; and some of the best placements have been made with the help of the Factory Inspector's department.

The cases frequently require a study in the care and assistance of the man who has been injured in industry. This whole problem requires first, a definition of what is a handicapped worker, a handicapped citizen. An instance which may be cited is that of a man who had fifteen hundred volts of electricity pass through his body—enough to kill several men, and there is no adequate explanation as to why he was not killed. His arm was taken off at the shoulder, his right leg was injured, and his scalp began to slough off, leaving a place the size of the hand through which the pulsating brain was exposed. The slightest blow there meant death. It was necessary to have a silver plate made to protect his brain. He received the highest compensation allowed in New Jersey. Very much to our surprise, he came to the office one day and said: "Now what are you going to do about getting me a job?" We said we did not know that he would want to work. He said: "I am not going to go home to die. I want a job." The surgeon said that the man was liable to die at any time, even while going downstairs. We took the matter up with the Public Service Corporation, and the question of compensation in case of further injury or death while in their employ was finally adjusted.

Fig. 3. Industrial accident showing amputation at the upper third of the left thigh.

After that, it was necessary to find something for him to do. They had a harness made which held the receiver of a telephone to his ear. We gave him a little instruction in the use of the switch board; and every day that man comes down town with one arm off and an injured leg and works for his allotted number of hours at twenty-five dollars a week. The man is allowing his wage to accumulate to pay for the purchase of some eight per cent bonds; so that, at the end of the four hundred weeks, he will receive enough money to be able to live for the rest of his life in comparative ease.

The most helpful angle of the Rehabilitation Commission is that intangible thing known as morale. Getting hold of themselves, men practically down and out, regain their initiative and their grasp on life. Only a few days ago, a man came to our office who was about to do away with himself. Examination of his previous activities showed that he had been a salesman in a tobacco plant. We were able to obtain for him a position in a tobacco plant as a salesman, and in three months he came to the clinic in an automobile owned by himself to take our representatives and assistants for a ride. It was shown that he was making more money than they were, and the firm reported that he was the most satisfactory salesman that they had ever had. These men need that particular care at their crucial moment, and this case is typical of thousands of cases.

The general scheme of our rehabilitation work is the same as in Pennsylvania. We are fortunate in having wide latitude in the administration of our affairs. The administration in Washington has been helpful in advising and directing us as to the side of the work they are most interested in; and I believe that they think it would be well if more latitude were given in the other states. As compared to Pennsylvania, we have the great advantage of being able to conduct these clinics and spend the money allowed for physical rehabilitation.

These clinics, known as ambulatory orthopedic clinics were something of an innovation and placed the state more or less in the field of medicine, creating a delicate situation, because the physicians and surgeons felt it to be the beginning of what is the bogey of all physicians—state medicine, or, it may be, compulsory health insurance. They are now convinced, however, that the object of the clinic is to supply that peculiar type of coordinated treatment which cannot be delivered by the average practitioner or the general hospital, and can

Fig. 4. Same man as shown in [illegible] activities [illegible]

Fig. 5. Same patient as in Fig. 3 in placement vocational training. He has been in continuous employment for one and one-half years.

be found only in the peculiarly specialized plant wherein the appliances for orthopedic treatment in its widest sense are found. Assuming that the average practitioner had the equipment (which he could not have, on account of the expense), he would not have the time to devote to complete rehabilitation.

Clinic Equipment Complete

We made a careful survey of the hospitals and found that a full equipment was in none of them. The general hospital has not the room, the equipment, the nursing facilities, the expert masseurs, or the time for this work. Some of these patients receive treatment for six months, coming every day or every other day; improvement is obtained from baking, electrical apparatus, and massage.

These clinics are equipped with x-ray machines, a full line of bakers, lamps for deep therapy, and a pathological laboratory for making blood and other tests. A room is provided for the performance of minor operations. A plaster room is equipped for the application of casts. The majority of injuries requiring rehabilitation affect the arms or the back. For the restoration of muscular strength there are provided bicycles, rings, punching bags, wheels, so that the injured men can pursue the specific exercises required. The McKenzie apparatus is available, the high frequency machine, electric vibration, are used, and within the past year we have developed a fully equipped orthopedic hospital. The workers are receiving the type of restorative treatment which originated during the Boer war as an outgrowth of the measures utilized by Dr. Jones, of London, a bracemaker who by such devices was able to reconstruct and return to the front men who had previously been thought wholly unfit for service.

A final point to be emphasized is that the physician in charge of a rehabilitation clinic needs to be of the highest type of his profession. Nothing short of scientific precision of method will serve to restore these men and, in the state of New Jersey, at least, it can be said that the injured worker receives a diagnosis and treatment as efficient for his type of case as it is possible to secure. Four clinics are in full operation, and a fifth is being organized. More than a thousand treatments were administered during the month of April. It requires little vision to see that the reconstructive value of such measures is inestimable.

British Factory Hygiene Report

The Annual Report of Chief Inspector of Factories for 1921 shows that British factory hygiene continues to hold its place in the front rank. In spite of the trade depression the number of factories has increased and the number of workshops has diminished. An increase in the work of inspection has naturally followed the multiplication of rules and regulations, but the owners show a cooperative spirit with few indications of a desire merely to comply with the minimum requirements of the law.

Improvement has been made in the introduction of mechanical grinding in the cutlery trades; in the sanitary conditions in food factories; in the use of abrasive wheels containing little or no free silica; and in the use of automatic and semi-automatic machinery in the glass-blowing trade. Temperature and ventilation conditions have shown a marked improvement, and although window-cleaning is still a topic for adverse comment general lighting conditions have shown some advance.

Undesirable conditions still exist in the work of loading and unloading ships. Nearly 46 per cent of the reported septic cases had received no first-aid treatment. The employment of unskilled labor in hazardous occupations and the foolhardiness of the skilled workers caused many needless accidents. The occurence of "brass-founder's ague" among men using the oxy-acetylene flame on galvanized plates is recorded. Aniline-black poisoning among dye workers is to be the subject of further investigations. Cases of lead poisoning are less in number and severity. It was found that the rescuers in cases of carbon monoxid poisoning often walked the patient up and down with the idea that such treatment was beneficial. The great need of rest in such cases is emphasized.

The question of hours of work and the problem of the underground workroom in London are also discussed. In general the report shows the record of a successful year.

The South African Institute for Medical Research has published the results of Mavrogordato's study of silicosis on the Rand. This experimental study corroborates the epidemiological findings that only silica dust produces conditions comparable to those found in tuberculous silica in man, and that the chemical activity and solubility are factors of great importance while hardness and sharpness exert little influence. Autolysis and digestion in the lymph of ingesting cells seems to be inhibited by some property of silica particles. Coal dust was found to have no effect on this action once the silica is fixed but in concurrent exposure coal dust prevents this fixation.

A small outbreak of lead poisoning due to beer was reported by *The Lancet*, August 12, 1922. A local practitioner in Middlesex recognized that several of his patients were developing symptoms of lead poisoning and notified the medical officer of health. Investigation disclosed the *fact* that the beer was free from lead on leaving the brewery. The contamination had occurred in certain public-houses that used for storage purposes large iron tanks lined with a lead glaze.

According to Dr. Arthur L. Murray, surgeon of the United States Bureau of Mines, the monetary losses due to accidents and contagious diseases in the coal mining industry of the state of Utah average close to a million dollars per year. With vaccination and typhoid inoculation so simple, Dr. Murray considers loss from either of these diseases inexcusable. Ascertaining and eliminating the sources of infection of the latter disease is also possible.

Eye Symptomatology in Occupational Diseases

Chemical Factors Are Usually Responsible for the Eye Disorders of Industrial Origin

By DONALD J. LYLE, M.D., and Carey P. McCord, M.D., Cincinnati, Ohio.

THE eyes of a high percentage of industrial workers have proved from extensive investigation to be defective. The proportion thus involved has varied from fifty to ninety per cent as reported from widely different types of industry. As a result of publicity subsequent to these striking findings a conception has become prevalent that industry itself has caused these defects. To those better acquainted with the problem, it is patent that many persons in industry exhibiting poor eyes possessed the same defects actual or potential, prior to their entry into industry. In other words, any group of persons without any industrial experience and without known exposure to any conditions harmful to the eyes will likewise reveal on examination much impairment of the eyes and eyesight. A large portion of the responsibility for the causation of poor eyes may thus be shifted from the shoulders of industry.

But associated with industry there exist divers conditions of work conducive both to the initiation and the aggravation of eye defects. The types of work particularly linked with eye sight impairment or eye injuries are those involving: (1) dust, abrasives, and flying particles; (2) splashing metals; (3) gases, fumes, and irritating chemicals; (4) glare; (5) radiant energy, chemical, and heat rays; (6) defective posture; (7) poor lighting. The items of this group are commonly regarded only as "eye injury hazards." These same conditions, however, may be considered the sources of many "eye occupational diseases," and any attempt to demarcate eye injuries from eye occupational diseases does nothing more than erect an artificial barrier between two similar sets of affections. It may with propriety be held that every eye impairment attributable to industry is in a sense an occupational disease.

The purpose of this paper is to describe a number of occupational affections of the eye that do not present the ordinary characteristics of the swiftly produced injury; that may develop insidiously; that commonly are not linked by the worker with his occupation; that may be accorded by the physician a diagnosis that fails properly to associate the malady with the patient's job as the producing factor.

Nystagmus may be found among those workers who year in and year out subject their eyes to abnormal and unaccustomed motions. The miner develops a nystagmus due to constant, imperfect fixation of his eyes on poorly illuminated objects; the chauffeur acquires nystagmus by the constant watching of traffic without complete fixation; the compositor by watching the type which he is setting; the paper hanger and painter by following their brushes, the position of the body often thrown out of a vertical position, thus causing more strain on the visual apparatus. For like reasons, locomotive engineers, draughtsmen, jewelers, typists, textile workers, and others may acquire a nystagmus.

Occupational Nystagmus

The short, rapid, continuous involuntary movements of the eyeball characteristic of nystagmus may be induced by occupational causes affecting the eyes through the central nervous system or from some extraneous cause. Nystagmus develops in a coal miner affected with carbon monoxid poisoning, the eyes responding to irritation or disease in the central nervous system. When, however, nystagmus in a coal miner is due to poor illumination, or faulty visual fixation of objects on the black coal face, the effect is produced by direct action on the ocular apparatus. Young children living in dark houses suffer from the same form of nystagmus owing to the defective development of the fixation reflexes.

A variety of occupations produce practically the same symptom complex. Miner's nystagmus, the best known and the most thoroughly investigated example of occupational nystagmus, occurs in from 3 to 25 per cent of coal miners. It usually appears between the ages of thirty-five and forty years among men who have engaged in mining for many years. Coal miners are much more prone to this affection than other underground workers, a fact which is attributed by the Miner's Nystagmus Committee of the British Medical Research Council to the additional blackness from the coal face. Of all cases among underground workers, 81.5 per cent occur among persons at the coal face.

Predisposing factors in miner's nystagmus are: (1) errors of refraction; the percentage of affected persons presenting errors of refraction is between seventy-five and eighty-five. Persons with astigmatic errors are more seriously affected; (2) unbalanced extrinsic ocular musculature; and (3) neurotic tendencies.

The factors which excite or produce the condition are (1) poor lighting. The prime factor is poor illumination which includes low lumen power, glare, and unrelieved, black coal face. Nystagmus is rare in metal mines, in which good illumination exists, and is much less frequent in coal mines with adequate illumination, with whitewashing, etc. (2) Working where an upright position cannot be maintained. (3) Lowered physical state (including injuries.)

The most severe and most common subjective symptoms are: headaches and dizziness; dancing and dazzling of objects, especially lights; failure of sight, especially at night (if above ground); photophobia; general fatigue. The objective symptoms include: (1) rotatory, lateral indefinite, or mixed movements of the eyeball, their frequency being in the order mentioned and their severity and duration indicating the degree of lack of coordination; (2) general condition of depression; (3) increased nervous irritability; (4) blepharospasm; (5) spasms of brow, head, neck, and sometimes shoulders.

Treatment involves a discontinuance of work at coal face, rest, correction of refractive errors, general building up of patient both physically and mentally. Less than 1 per cent of cases are permanently affected. Of the remainder all physical signs usually disappear within two years after the man has left coal face work. Many clear up within a much shorter time. In those cases permanently or semi-permanently affected, marked psychic disturbances have usually been concurrent with or have preceded the eye condition. Preventive measures need to include (1) Correct-

tion of refractive errors and muscular instability. (2) Adequate illumination, without glare. (3) White-washing of extensive portions of mine (passageways, timbers, etc.). (4) Arrangement of working hours so that there may be opportunity for recreation in daylight. (5) Thorough medical supervision, and the maintenance of high physical standards among workers. (6) Proper mine sanitation, particularly with reference to humidity, cooling power of air, absence of carbon monoxid, etc.

Carbon Monoxid Poisoning

Carbon monoxid poisoning is the commonest of all occupational diseases. This condition is found as acute, chronic, or delayed poisoning. It is to be recognized that serious and lasting harm to various systems and organs of the body may follow exposure to carbon monoxid. A small percentage of persons thus poisoned present eye involvement. It is noteworthy that the eye changes show little constancy. The list of eye manifestations definitely associated with carbon monoxid poisoning includes the following: color blindness, contracted visual fields, diplopia, scotoma, hippus, impairment of pupillary light reflexes, irregular pupils, unequal pupils, diminished vision, engorgement of retinal vessels, retinal exudate, sectional blanching of optic discs, edema of optic discs, optic neuritis, optic nerve atrophy, and complete ophthalmoplegia, with marked protrusion of the eyeballs.

A typical case of carbon monoxid with temporary blindness is reported by Abelsdorff in a worker who was exposed to the fumes from a charcoal stove. After about two days he suffered from headache, malaise, dizziness, vomiting; on the fourth day, diminished vision appeared and on the fifth day he could scarcely recognize large objects. Physical examinations of the eyes were negative, except for a slight, horizontal nystagmus. At this time no carbon-monoxid-hemoglobin was found in the blood. On the sixth day, vision in right eye, hand movements at one meter; field of vision contracted almost to the fixation point; left eye practically in same condition; color blindness existed in both eyes. Eye movements were normal except that the right eye was sluggish in upward movement. Fundi were normal. At the end of one week, and without medication, vision was, right 6/20, left 6/25. The fields were concentrically contracted, no scotomata; color blindness remained in part; paresis of the left inferior rectus. At the end of three weeks, pupils were clear, vision normal, fields were normal but paresis persisted.

Carbon bisulphid is commonly taken into the body through the lungs, after exposure to its vapors. In chronic cases, the vision is gradually lessened beginning with a retino-bulbar neuritis and progressing slowly to nerve atrophy. The prognosis is never good. In advanced cases, vision is seldom recovered.

Both soluble and insoluble arsenic preparations are capable of producing external and internal injury of the eyes. More frequently the manifestations are late, due to slow absorption of a small amount of arsenic which has entered the system through the alimentary and respiratory tracts. The chief complaints from the patient center about (1) pain in the eye, with itching, burning, and irritation; (2) painful vision, blepharospasm, lachrymation, and photophobia; and (3) loss of vision, as nerve becomes affected. The most constant eye findings from systemic involvement are peripheral neuritis, optic atrophy with amblyopia, contracted fields, and scotoma. Less frequently opacities in the vitreous are noted. Both eyes are usually affected, often unequally. In animal experiments, a degeneration in the medullary sheaths of the optic nerve fibers has been found. The action of arsenic on the external eye leads to edema and pigmentation of the eyelids, chemosis, and sometimes hemorrhage of the conjunctiva. The conjunctivitis may arise either from direct or systemic poisoning.

Ocular Lead Poisoning

The eyes are involved in about 1.2 per cent of all lead cases. Although the eyes may be the only source of complaint, careful examination will ordinarily lead to evidence of systemic lead poisoning. Ocular manifestations of lead poisoning vary widely. The symptoms and findings may involve any or all parts of the eyes. There is little reason to believe that the harm to the eyes is traceable to lead directly entering the eyes. The usual modes of entrance through the alimentary tract and the respiratory system are more acceptable as sources of the lead reaching the eyes. No form of lead is known to have any special predilection for the eyes. Usually the patient complains of headache, vertigo, blurred vision, constriction of the visual field, central color scotoma, perverted color vision, or diplopia. The physical findings include any or all of the following symptoms: ptosis, conjunctivitis, paralysis of the extrinsic ocular muscle, especially those enervated by the third nerve, retinal edema, neuro-retinitis, retinitis-saturnine, optic neuritis, and optic atrophy. The damage from lead may be transitory, due to an ischemia, or permanent through the action on the optic tract or to perivasculitis. Since lead may induce a chronic nephritis, some difficulty may arise in differentiating between ocular lead poisoning and albuminuric retinitis.

No measures of prevention or treatment apply specifically to the eyes. If systemic lead poisoning is prevented no instance of ocular lead poisoning will appear.

Methyl Alcohol

Although the greater number of cases of wood alcohol blindness has in the last few years developed from the use of this poison internally, a considerable number still arise as the result of intoxication following exposure to wood alcohol used for industrial purposes. Less methyl alcohol is utilized in industry at the present time than was true a decade past. About twenty years ago, after many deaths and much blindness from methylated spirits in industry, the section of ophthalmology of the American Medical Association petitioned Congress to permit the production of a commercial ethyl alcohol that would undersell the dangerous methyl alcohol (passed June 7, 1906). This cheaper denatured alcohol is an acceptable substitute for the harmful wood alcohol except in a few trade processes wherein the use of methyl alcohol is requisite.

Methyl alcohol may act as an acute or chronic poison, the chronic form being most insidious and many times not easily diagnosed. In either case the ocular symptoms arise as a part of the general systemic poisoning. The affected worker complains of decreased vision and lessened visual fields. Upon examination there is found, in an early case a retrobulbar neuritis, or pallor of the discs with constricted retinal vessels. Atrophy of the optic nerve is a later development. Opinion is that the chronic poisoning first destroys the axis-cylinders, later attacking and destroying the ganglion cells. Blindness is reported to develop in 6 per cent of all persons poisoned by methyl alcohol. The chances for restoration of vision are very poor. Most of those affected remain permanently blind.

To avoid wood alcohol poisoning, denatured ethyl alcohol should be employed wherever possible; where the substitution is not possible, wood alcohol should be utilized in "closed cir-

cuit," wherever compatible with the trade process. Adequate exhaust, together with good factory ventilation is essential. At all times, workers should be acquainted with the harmful properties of wood alcohol and the conditions under which poisoning may arise.

Anilin

Anilin and many of its related chemical compounds are capable of inducing eye lesions. The eyes may be affected externally by anilin vapors, especially hot vapors. For the most part, however, the eyes are harmed by anilin which is absorbed through the skin or taken into the body through the respiratory or alimentary tracts. Acute anilin poisoning is likely to involve the eyes by external irritation with a temporary blurring of vision. On examination of workers long exposed to anilin, the external eye may be found to be uniformly pigmented. The corneal epithelium is roughened and pigmented. A conjunctivitis with ciliary injections is frequently encountered. In the more advanced case, scotoma and amblyopia are to be found. Retinoneuritis has been observed.

Prognosis in such cases is good provided the source of intoxication is removed.

Occupational Cataracts

Slow developing cataracts frequently exist among workers whose occupations involve continual exposure to intense light and heat. These cataracts are especially associated with workers in molten glass; but are known to arise in such other industries as chain making, smelting, tinplate making, welding, acetylene and oxyhydrogen cutting. Both heat and light are factors in causation of occupational cataracts. Intense light without pronounced heat will produce opacity of the lens in experimental animals. The emanations from molten glass are rich in heat rays and poor in chemical rays. Concentration of the aqueous humor, due to constant evaporation on the surface of the cornea, may be an etiological factor. The period of cataract formation is long. For many years a progressive opacity of the lens, usually in both eyes, goes on without any knowledge of the victim. Ophthalmoscopic examinations may show distinct lens involvement long before any complaint of lessened vision. In the glass industry the left side of the blowers' face is held closer to the oven and often the left eye is involved before the right.

The cataracts are posterior-polar or cortical, varying in size and shape, some being round, some rosette-shaped and some irregular in form. It has been suggested that the reason for the opacity being only in the visual path is that the iris pigment and blood vessels protect the periphery of the lens from the harmful rays. The damage appears to be limited to the lens. A few reports refer to disturbances of the retinal pigment.

Other than the gradual loss of vision, no subjective symptoms are complained of by exposed workers. During the formative period no complaint is made and usually not until well established opacity exists are these conditions brought to the attention of the ophthalmologist. Often the vision is reduced to one-tenth normal before medical advices are sought.

Provided no other lesions or complications interfere, the operative risks in occupational cataract are good. This is contrary to the usual posterior or cortical cataract. As a rule, on account of loss of all accommodation, operated employees cannot resume their former work.

Protection against occupational cataract is to be found through the continuous use, during the exposed period, of goggles that absorb or disperse both the heat and chemical rays. Such goggles lend themselves to use containing a plain glass or a glass correcting the workman's refractive error. Great difficulty in securing protection from the development of occupational cataract arises from the disinclination of workers to wear these protective glasses continuously through the long period in which cataracts are insidiously developing.

The participation of the eyes in chronic occupational disease is by no means limited to the foregoing conditions. To this group may with propriety be added many such lesions as immobile pupils, nystagmus, corneal opacities, following long exposure to benzene; paralysis of ocular muscles resulting from picric acid; keratitis found among harvesters; retinal and papillary edema followed by fatty degeneration presented by workers in phosphorus; divers chronic eye lesions arising among workers in pharmacals; and amblyopia occurring among tea tasters and tobacco workers.

Kinesthetic Knowledge

MUSCULAR skill has a much higher intellectual value than is usually assigned to it. Bodily skill—the ability to deal with the world by means of one's muscles—is no mean achievement, and carries with it a specific and unique kinesthetic knowledge. T. H. Pear in a recent issue of the *British Journal of Psychology* discusses at some length the structure of knowledge which is the unique possession of persons of muscular sense only, such as that arranged and synthesized by Helen Keller. Complicated behavior can go on without the slightest trace of visual memory. Coordinations of bodily movements are achieved with difficulty, and notwithstanding the great usefulness of physical training in the general education, there is almost a complete lack of descriptive words to express kinesthetic experiences.

Pear suggests that a hundred simple, elementary, and typical attitudes of the body and limbs be developed from existing manuals of drill and physical training and eurythmic exercises as fundamentals, and that such exercises as fencing, golfing, cricket, and skating be analyzed and their definite "stances" be learned and *named*, so that they could be associated with definite kinesthetic experience. Motion study in this connection is very important.

It is because the motiles as compared with the socially established visiles and audiles seldom get fair play that the intellectual value of motor coordinations is little appreciated. How closely the doctrine of "conscious attitude" advocated by Pear is related to the left wing of behavioristic psychology it is difficult to say, but it is safe to say that greater precision and more rapid reaction become possible as visual and auditory imagery are supplemented by the so-called muscular sense. Even the heaviest muscular effort has its resulting coordinations of real intellectual value, which accounts, to this psychologist, at least, for the direct thought and fearless conclusions of many of our typical laborers.

The Safety Institute of America has inaugurated a safety film service for members and others particularly interested according to announcement from headquarters in New York. The service was made possible by a gift from the department of safety, education, and welfare of the United States Steel Corporation.

The Effects of High Temperatures and Humidities*

Physiological Basis of Modern Ventilation and Present Methods of Research

By W. J. McCONNELL, B.S., M.D., Passed Assistant Surgeon (Reserve), U. S. Public Health Service, Washington, D. C.

IT is a fact daily becoming more impressive, that exposure of workers to high temperatures and humidities is one of the most serious of the health hazards incident to occupation in many industrial plants. Measures designed to obviate this hazard are of interest, not only to industrial physicians, but to those interested in the physical sciences as well. The problem is essentially one of ventilation, and only with the solution of its perplexing questions can we hope to mitigate the heat hazard.

Although nearly a century has passed since the first commission on ventilation, a group of Englishmen, began to study this problem, some doubt still attaches to the question as to when a room is properly ventilated, and what amount of air may be considered necessary adequately to ventilate an enclosed space.

With the introduction of steam, and the growth of industry in general, the problem of ventilation has become more complex. Today, the effects of working in excessive heat and moisture must be dealt with, and the different methods of measuring these effects must be studied.

In the light of the more recent investigations, we have changed our methods of determining the fitness of air and, in fact, have come to look upon the entire problem from a different point of view.

Formerly the physical and chemical method was used almost entirely to determine the fitness of air, and a chemical analysis of the air was considered very important, together with the number of cubic feet of air supplied per hour. The air problem was considered a problem of chemistry; and ventilation, one of supplying chemically pure, and removing chemically impure air.

The present conception is that living beings constantly produce and give off to the atmosphere their excess of heat. This heat is carried away partly through the lungs, in the expired air; but chiefly through the skin, by radiation, conduction and the evaporation of perspiration. An atmosphere which is neither too hot nor too humid to insure this heat removal must surround the body. In many industrial plants there exists an atmosphere which is too humid for the proper dissipation of body heat; and the normal physiological functions of the body are interfered with. Many recent investigations have been made to ascertain just what physiological changes take place; and if any criticism can be made of the work so far completed, it is that the investigators have too frequently studied the more extreme conditions and overlooked some of the less apparent, but equally important symptoms of slightly inhibited or slightly accelerated reactions of a physiological nature. Their experiments were, likewise, continued for too brief a time; and their observations were limited to only a few of the more easily measured bodily functions, such as body temperature, respiration, pulse and blood pressure.

Physiological Problems

Until we know all the physiological processes interfered with or altered by the effects of high temperatures and humidities, we must consider a greater number of bodily functions; because frequently it is the unexpected thing that happens. As an example of this, it is interesting to note that Bloch, in his study of fatigue as experienced in different parts of the body, in different trades, found that the blacksmith who had been striking iron did not complain of his arms and shoulders, as might have been expected; but of his back and loins. The recruit, after a long march, although not carrying a haversack, complained of pain in the nape of his neck; the shoemaker, who hammered tacks into the soles of boots, was fatigued in his abdominal muscles; the boatman, as the result of prolonged rowing, complained of the insteps of his feet; while the artist complained of numbness of the muscles of the left hand, as a consequence of holding his palette tightly.

The United States Public Health Service, cooperating with the Bureau of Mines and the Society of Heating and Ventilating Engineers, is at present engaged in a study of the relative importance and correct correlation of the many individual factors concerned in the problem of ventilation, and the physiological effects observed under different conditions of temperature, humidity and air motion.

It is realized that thorough results may be expected from cooperative experiments in which experts, each in his own field of work, attack the problem from their point of view under leadership. No matter how skilfully a scientist may pursue his studies, it is evident that greater advances can be made more rapidly and more certainly by a concerted attack upon a problem by congenial cooperation among men of different scientific training.

The equipment of the Bureau of Mines for this kind of research work is extraordinarily excellent. A psychrometric room eighteen feet square, with a ceiling height of ten feet, lined on all sides with four inches of cork board, and designed automatically to maintain air conditions at a desired temperature and humidity, has been equipped for this purpose. The air conditions are controlled by apparatus outside of the chamber, and entirely separated from it. The air, heated to a desired temperature and saturated with moisture to a desired degree, enters the chamber through a fourteen-inch circular inlet, and is propelled by a blower connected to a five-horsepower, sixty-cycle motor, which is capable of handling one thousand cubic feet of air per minute. The room is divided into two chambers, separately controlled; so that it is possible to determine the sensitiveness of the body to slight changes in temperature and humidity by having the subjects pass from one chamber, of a given temperature and humidity, to another, slightly different.

A very comprehensive program is at present being carried out, which includes a quantitative study of a considerable number of bodily functions. As probably no living organism of any kind can endure great variations

*Condensed from a paper presented before the Fifteenth Conference of Industrial Physicians and Surgeons, Harrisburg, Pa., May 25, 1922.

of external temperature, and, at the same time, retain its physiological efficiency, as well as can man, human subjects are used in the experiments, under accurately controlled air conditions.

At half hour intervals, the pulse rate, respiration rate, blood pressure and body temperature are recorded. The mouth temperature is registered by the clinical thermometer, while the rectal and surface temperatures are recorded by means of thermocouples. Before entering the experimental chamber, the subjects remain for two hours in a room kept within a known range of temperature and humidity; and records of pulse rate, respiration rate and temperature are made, in order to learn the condition of the subject before entering the chamber on the day of the experiment. On entering and leaving the chamber, the subject is weighed on scales which register within a quarter of an ounce.

The subjects remain in the chamber for a period of three hours, during which time, in addition to the above measurements, metabolism, by the indirect method, and hemoglobin determinations are made. It is also contemplated to make lactic-acid, blood sugar, and other examinations of the blood; such as bloodcounts, hydrogen-ion concentration of the plasma, a determination of the agglutinating and hemolyzing power of the blood, the resistance of the erythrocytes to laking by hypotonic salt-solution, the concentration of chlorides in the corpuscles, and that of bicarbonate in the plasma. Some quantitative studies will also be made of the urine and sweat of the subjects exposed in the chamber.

Standards of Measurement

Our experiments, so far, have been too few in number to arrive at any conclusions pertaining to the physiological reactions to different conditions; and I can only, at this time, emphasize the importance of determining the physiological reactions to a controlled environment as a measurement of the harmful effects of heat and humidity. Experience has taught that we cannot depend entirely upon our feelings of discomfort as a standard of measurement; because there is a certain adaptation of the sense organs to an unchanging environment, and because people differ in their sense reactions. In conclusion, I wish to state that, as important as laboratory experimentation along these lines is, still the results are not always conclusive, and may be expected to serve only as a guide to devising means to provide human beings with air fitted for their use. Industry supplies, for the study of the clinical side of this problem, great opportunities, which are today hardly sufficiently appreciated. Industrial physicians can assist very materially in the ultimate solution of this, and similar problems, by reporting their observations on workers exposed to the various industrial conditions that they find; and in this way, cooperate with their laboratory colleagues. By such cooperation, the solution of industrial problems will be simplified and expedited.

Drug Misconceptions As Applied to Surgery*

THE surgeon as well as the internist sees much harm resulting from popular misconceptions in the use of drugs. Two such misconceptions frequently encountered are the belief that (1) iodin is an innocuous panacea, and (2) carbolized vaselin as obtained at any drug store is a harmless antiseptic and very superior to plain vaselin, which would not kill any germs.

Tincture of Iodin

The tincture of iodin of the United States Pharmacopeia is a 7 per cent solution of iodin and alcohol. As such, when applied in a thin layer to the skin, it acts as a very efficient disinfectant and a mild irritant. In the case of the average individual it will not cause a dermatitis when applied in small amounts. The popular misconception consists in this, that if a little or 7 per cent solution of iodin is a good disinfectant or a mild counter-irritant, a larger quantity will act much better and more quickly, so that instead of applying the iodin in a thin even layer it is painted over and over again. Often to make matters worse a non-permeable dressing is applied over the iodinized area thus preventing any possible loss of iodin through volatilization. A frequent result of such treatment is that the patient presents a severely blistered skin area surrounding an insignificant scratch.

Another misconception is that iodin will disinfect by absorption. Although iodin is absorbed and may have a slight power as a disinfectant in this way, it is in the highest degree erroneous to hold that bacteria in the deeper tissues or even the deepest skin layers will be affected by iodin applied externally. Iodin acts as a disinfectant where it comes in actual contact, where it stings, but a daub of iodin on a pin prick will not affect the bacteria carried down into the deeper tissues. Its counter irritant effect may increase the blood volume in the area and thus aid in preventing infection, but not more so than a simple hot wet dressing.

For bruises, sprains, and contusions the only good that an application of tincture of iodin could possible do would be on account of its irritant properties, and here again heat would cause a much greater vaso-dilatation if that is desired. Due to the prevalent idea that tincture of iodin is good for bruises, the surgeon is often called upon to treat, not the bruise, but the iodin burn. "Paint it with iodin and mark him duly," was supposed to be the medical department's slogan during the war. If iodin is used for conditions other than those absolutely indicated, it was at least applied in small amounts and usually left uncovered.

Carbolized Vaselin

Carbolized vaselin as commonly dispensed and used is a most dangerous drug. Its sale ought to be restricted in the same manner as the sale of pure carbolic acid. When properly made, carbolized vaselin is not dangerous, for it is a weak and stable solution of carbolic acid in petrolatum. To make carbolized vaselin properly the pure crystals of carbolic acid must be dissolved in the vaselin. This is a slow and laborious process. Many drug stores make their carbolized vaselin out of solutions of carbolic acid. This, however, forms an unstable compound. The carbolic acid solution is not held in suspension by the petrolatum but is gradually separated.

The patient using a jar of old carbolized vaselin may get a portion of plain vaselin or may get a portion of vaselin containing a highly concentrated amount of carbolic acid. When this is smeared on the wounded area and a heavy dressing placed on top of it a very serious injury may result. Such an injury may vary from the superficial carbolic burn to an actual gangrene which may cause [illegible]

*The seventh of a series of articles on "Popular Medical Misconceptions" beginning with the March issue of THE NATION'S HEALTH

tensive tissue destruction and call for radical surgical interference. It is not an infrequent occurrence in the dispensary to see a serious and permanent injury resulting from the application of carbolized vaselin to an insignificant scratch or cut. The medical profession itself is not sufficiently impressed with the dangers of ordinary carbolic vaselin. If physicians realized the likelihood of their patients obtaining an unstable solution and the dire possibilities which may follow, carbolized vaselin would never be prescribed. Its possibilities for danger are such that the sale of carbolized vaselin should be forbidden except with the same restrictions which govern the sale of pure carbolic acid, cyanids, and other deadly poisons.

National Safety Council

THE annual meeting of the National Safety Council, held in Detroit, August 28 to September 3, indicates a greater broadening of their field of effort than their original purpose of preventing accidents in industry. The interest of the community in accident rates and the part of the citizenry in accident prevention were well emphasized in tabulations of accidents which are presented in the September issue of THE NATION'S HEALTH. Vehicular accidents in fifty American cities were analyzed by Ambrose Ryder and H. P. Stellwagen of the National Bureau of Casualty and Surety Underwriters. Cause enough appears for the present concentration on this matter and for the finding of funds for prevention, education in the rules of the road, and special protective devices.

Dr. Nelson M. Black offered a very practical exposition of the subject of eyestrain in industrial occupations, dividing cases of eyestrain into two groups, (1) those under proper illumination which result from standard vision due to congenital conditions, disharmonious muscular action, or defect or disease in the eye itself; and (2) those resulting from improper or inefficient illumination. The place of visual tests in routine physical examination received attention as well as the subject of proper adaptation of the worker to the job. Once the basis of intelligent placement is understood, the problem of making working conditions right can proceed intelligently. Carbon monoxid poisoning as a health menace was discussed by Yandell Henderson.

The platform of the Council for 1923 is embodied in the following resolutions:

WHEREAS, the 80,000 accidental deaths and millions of injuries occuring each year on our streets, in our industries, in homes and elsewhere are a blot on American civilization and the cause of untold suffering and sorrow, and

WHEREAS, the direct economic cost of industrial accidents alone exceeds one billion dollars annually, and

WHEREAS, experience has demonstrated that at least 75 per cent of industrial accidents are preventable and that approximately an equal reduction is possible as regards public accidents, therefore be it

RESOLVED: That the National Safety Council in its Eleventh Annual Congress in Detroit assembled advocates:

(1) The safeguarding of all dangerous machinery and places according to standard methods of proved value;

(2) The development of industrial equipment and processes along lines of inherent safety for the double purpose of eliminating accident hazards and increasing production efficiency;

(3) The education of all workmen and their supervisors in safe methods and habits of work;

(4) The training in safety of all school children, as well as students in colleges and universities, both for their own protection and as an object lesson in good citizenship;

(5) The adoption and strict enforcement of uniform, practicable laws and ordinances for the safeguarding of vehicular traffic and the protection of the multitude of law abiding drivers and pedestrians against the thoughtlessness and recklessness of the few; and

(6) The mobilization of all community forces through state and city safety councils for securing these ends through the overwhelming force of enlightened public opinion.

Officers for 1922-23 were elected as follows: Marcus A. Dow, New York Central Lines, New York City, president; C. B. Auel, Westinghouse Electric Co., East Pittsburgh, Pa., vice president in charge of industrial safety; David Van Schaack, Aetna Life Insurance Company, Hartford, Conn., vice president in charge of public safety; George T. Fonda, Fonda, Tolsted, Inc., Washington, D. C., vice president in charge of sectional activities; L. A. DeBlois, Delaware Safety Council, Wilmington, Del., vice president in charge of local councils; Homer Neisz, Commonwealth Edison Company, Chicago, treasurer and chairman of finance committee; W. H. Cameron, National Safety Council, Chicago, managing director and secretary.

Research from the Business Man's Standpoint

Industrial research is out of balance, according to Edward P. Hyde in the current issue of *The Chemical Age*. Some industries which might annually spend millions for research actually expend a mere pittance, while other concerns provide extensive laboratories and elaborate facilities for research. Five different avenues of research in American industry have recently been tabulated and discussed by A. P. Fleming as a monograph of the Department of Scientific and Industrial Research of the British Government: (1) Research applied to the elimination of manufacturing troubles; (2) researches having some new and specific object in view; (3) researches in pure science with no specific commercial application in view; (4) research applied to public service; and (5) research which is undertaken for the purpose of establishing standard methods of testing and specification connected with the purchase of raw material.

The research work now under way may roughly be divided into that undertaken in the works laboratory and the fundamental industrial research primarily devoted to the development of entirely new products, and the purely scientific research, but in fields out of which the industrial development of the future may be expected to come. A small fixed sum year by year may wisely be devoted to research of this kind, especially in those branches of industry which are in the nature of a monopoly.

There is an increasing tendency to regard the study of the needs of the consumer as quite as important as to study the manufacturing end, for industrial success depends upon the marketing of the commodity best suited to the needs of the consumer. A steel manufacturer who produced materials regardless of the demands of the engineer would meet with small success in selling his output. In the standardization of products the spirit of research might wisely prevail.

Estimates of the amount of money to apportion to research vary exceedingly. It depends to a great degree upon the foresight and judgment in initiating and organizing the research program. Business expansion and development depends largely upon the success which attends the effort to sell research to business. The research worker must utilize the advantage of prepared statistical record of the part played by research.

Recent Compensation Decisions

By DOROTHY KETCHAM, Director, Social Service, University Hospital, Ann Arbor, Mich.

AN employer is liable for all legitimate consequences following an accident including unskillfulness or error of judgment of the physician furnished under the Compensation Act according to the Supreme Court of Oklahoma, May 2, 1922.

The plaintiff while in the employ of the defendant was engaged in painting a tank belonging to the defendant, and, while so engaged, fell from a scaffold on which he was working, resulting in injuries to his left shoulder. After sustaining the injury he was placed in a hospital. Compensation was paid and settlement made. Later action was brought seeking damages resulting from the negligence of the physician employed to exercise reasonable and ordinary care in examining the injured shoulder, failure to ascertain the extent of the injury and failure to properly set or relocate the joints of the shoulder, causing as a result a total loss of his left arm and shoulder, and causing paralysis.

It was claimed that injuries resulting from the negligent and unskilled treatment by a physician furnished by an employer under the Compensation Law do not "arise out of and in the course of employment" or "naturally and unavoidably result" from the original injury. Further, it being a mandatory duty of the employer to furnish medical and surgical aid, the physician becomes the agent or servant of the employer and the rule of *respondeat superior* applies, and the employer is therefore liable to the employee for injuries, by reason of the maltreatment or negligence of the physician, and that the employee's only remedy would be by action in the ordinary constituted courts, and not before the State Industrial Commission, as the latter tribunal would be without jurisdiction. In the opinion of the court, the Compensation Law "requires that every employer engaged in conducting any of the enterprises therein mentioned, which are declared to be hazardous, shall provide as required by the act, compensation according to the schedule of the disability of his employees, resulting from an accidental injury sustained by the employees arising out of and in the course of their employment. The liability prescribed is made exclusive except where the employee fails to secure the payment of compensation . . . and upon the failure of the employer to comply with the provision of the act, the injured employee may elect either to file his claim with the Industrial Commission, or he may sue in the court having jurisdiction of the subject matter . . . But, when the employer has complied with the act on his part, then the jurisdiction of an action to recover damages for the personal injuries suffered by the employee, not resulting in death, is exclusively before the State Industrial Commission."—*Brown v. Sinclair Refining Co., 206 Pac. 1072.*

IF death can be traced directly to the accident an employer can be held liable for compensation for an employee's death by disease under the Workmen's Compensation Act the Supreme Judicial Court of Maine held April 12, 1922.

The Supreme Court, it has been held, is bound by the Industrial Accident Commission's finding of fact if there is no fraud and if there is any legal evidence supporting the findings. The facts will be given briefly. It seems that the lumber mill in which Mr. Ballou was working burned November 17, 1919. In escaping from the building he was burned quite badly. "For several days after the fire his tongue was so badly swollen because of the burns he could not speak. He was unable to eat solid foods for several weeks after the fire. He developed a severe cough immediately after the fire and when coughing he raised a brownish sputem. This continued from the day of the fire until the day of his death."

In the opinion of the court, "if the death can be traced, even though the paths of evidence be devious, directly to the accident and as a result of the injuries there received, it will undoubtedly be conceded that collateral issues of law or fact become immaterial, because, if the death can be so traced, it brings the case, regardless of the facts, within the purview of the statute. ... The evidence, if believed, tends to show a causal relation between the injuries and the death; and the credibility of the evidence under our statute and decisions is absolutely within the judgment and decision of the commission or its chairman. If the appellate court find any legal evidence in the record that supports the decision, it has fulfilled its line of inquiry in that regard.—*Ballou's Case, 116 A. 591.*

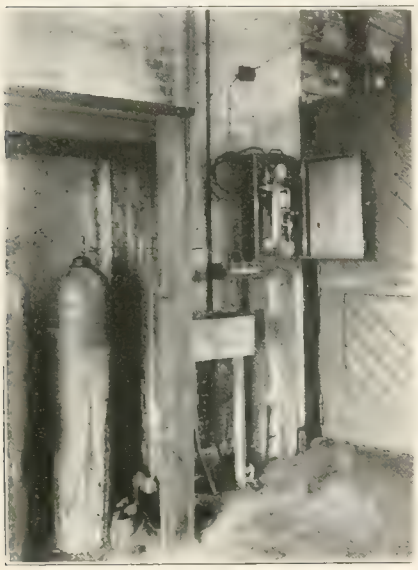
THE plaintiff in the case received some slight bruises on his chest when the team he was driving fell over the edge of a bridge and precipitated him into the water and wetted him. He worked all that day until about ten that night, October 1, 1920. The following day he remained at home and called a doctor who treated him for a cold. October 6 he returned to work in a normal condition by the physician's statement. He remained at work for twenty-two days when he again called the doctor who found a pain in his chest, bronchitis, and a slight pleurisy. The illness grew worse and November 11 he died from bronchial pneumonia. Claim for compensation was filed on the ground that death by pneumonia was attributable to the accident on October 1. The referee allowed his claim, which was confirmed by the Compensation Board and the Court of Common Pleas. The Supreme court of Pennsylvania in passing on the situation March 6, 1922, says that the testimony did not support the conclusion that the pneumonia was traceable back to the accident as a natural result therefrom.

Here all that appears is that the injuries were "indirectly responsible" for the pneumonia. This amounts to no more than saying it "might have resulted," which we held in the Fink cases, is not sufficient. In cases such as this, there must be a probable, direct relation between the injury and the disease, resulting in death, otherwise liability would be fixed by surmise. No such direct relation appears by the record before us. Judgment of the court below was renewed. —*Morgan v. Philadelphia & Reading Coal & Iron Co., 116 A. 891.*

AN employee, while engaged in heavy work requiring him to hold heavy hangers above his head, had an attack of acute dilatation of the heart and died within a short time. The Supreme Court of Michigan, March 30, 1922, overruled the objection that there was no accident in the sense of a fortuitous, unforseen mishap, and supported the Compensation award. Interesting implications are suggested as to possible reductions in risks of this kind through vocational alignment and competent medical counsel. *Hewitt v. Iron Foundries Co., 187 N.W.*

Elimination of Organic Odors

THE problem of eliminating industrial organic odors has been solved by Drs. Yandell Henderson and Howard W. Haggard of the Laboratory of Applied Psychology, Yale University, who have devised an apparatus whereby gaseous emanations are treated with chlorine thereby rendering them odorless. Their report is published in the *Journal of Industrial and Engineering Chemistry*. This method is much less expensive and less ponderous than the other method which required that the material itself be treated with some deodorant. To obtain the best results, however, the chlorine must be adjusted with considerable quantitative accuracy.



Apparatus for control of the chlorine injected into vapor-carrying odors at Municipal Garbage Plant, New Bedford, Mass.

The use of chlorine has the advantage that it is already in use for the control of city water supplies, and apparatus for the control and precise adjustment of the flow of gas is manufactured and already widely used. This can be readily adapted to the chlorination of air. This method makes possible a great economy in the disposal of the garbage of a large city.

"The total amount of odoriferous substance" say the authors, "is distributed over many square miles and even when strong and offensive is in absolute amount very small, perhaps only a few grams, or at most only a few pounds or kilograms. Therefore, a process which would effect the mixture with the odoriferous substance with some deodorant agent such as chlorine need use only a correspondingly small amount of this agent. This would give relief to the great number who live within reach of the odor."

The method of chlorination by gaseous emanations follows: The material should be dried, digested, or aerated in some closed space from which all the odorous gaseous emanations may be drawn off in a current of air through a duct. The flue from the dryer leads to the chlorinating chamber or duct, the vents from the digestors after passing through condensers are likewise carried to the chlorinating chamber. If material is turned or aerated on the floor or pressed or otherwise treated, the vapors are drawn off through an opening usually high on the walls or in the ceiling. A fan draws the contaminated air and drives it through a chamber or along a duct to the final effluent or to a stack. Just beyond it a tube of only a few millimeters in diameter is run into the duct and there discharges the chlorine gas which is fed into it through the control apparatus from cylinders of liquid chlorine located at some convenient point.

The apparatus once installed and adjusted runs automatically, requiring little attention.

The Physician in Industry: A Symposium

The medical and social aspects of the work of the industrial physician have received sane and enlightening treatment in Special Report No. 22 of the National Industrial Conference Board. Special movements are, during their period of development, apt to be denied the attention that they deserve from the general reader whose first interest is in some other field. To some extent this is the inevitable result of the multiplication and internal specialization of professions. The appearance of the report mentioned above is, therefore, worthy of note for its brevity and scope, which allows anyone to acquire a comprehensive and well balanced view of the present status of the movement without a great expenditure of time and study.

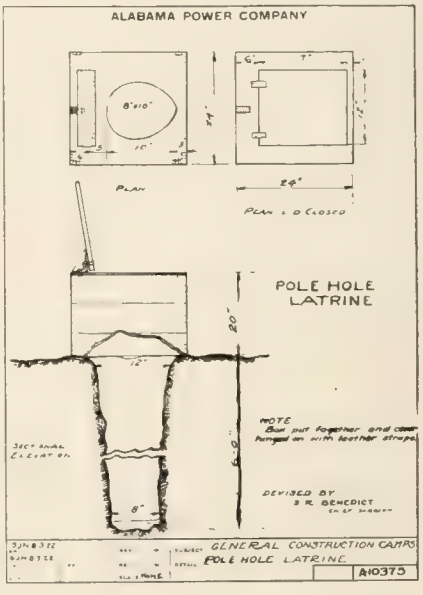
Members of the Conference Board of Physicians in Industry, which acts as medical advisor to the National Industrial Conference Board, have written eighteen of the nineteen sections that appear in this report. The organization of the medical department in industry, its relation to the management, its relation to the community, first-aid, records, dental work, tuberculosis and heart disease, the standardization of end results following injury, and the compensation of various injuries are representative of the subjects discussed. The concluding section is on the value of the medical department in industry from the viewpoint of the management.

The value of industrial medical departments is clearly shown. In contrast to the benefits, the common deficiencies are pointed out and the defects of present compensation laws in putting a premium on poor surgery are particularly stressed.

The common opinion among ventilating engineers that tapering in main ventilation ducts was necessary for good distribution should receive some modification in view of the recent study by Winslow and Greenburg that appeared in the *Public Health Reports* for July 28, 1922.

The contamination of cistern water used for drinking purposes by lead flashings on a roof is reported in the *Public Health Reports* for July 28, 1922.

Sanitary Pole Hole Latrine



The question of sewage disposal in a camp is one of its most serious problems and one that must be solved before camp conditions can be considered safe and healthful. For a number of years the Alabama Power Company had difficulty in getting a latrine properly constructed. Invariably they were dug so that flies had easy access. Realizing that the men in camp were adepts in digging pole holes, S. R. Benedict, chief surgeon, devised the pole hole latrine.

The hole is dug six feet deep with a diameter of 8 inches at the bottom and 12 inches at the top, a wooden box 20 inches high is built over the hole and the lid is hinged with leather straps.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

The Game of Health in Minneapolis Schools

Teeth, Posture, Nutrition Emphasized in Consistant All Year Health Program

By NILS JUELL, D.D.S., Chairman Health Promotion Committee, Minneapolis Board of Education, Minneapolis, Minn.

IF BRIGGS, the cartoonist, could have stepped into a certain Minneapolis grade school one morning a few months ago, he would have been a witness to a living enactment of his own slogan, "When a feller needs a friend." The picture presented in this particular instance had as its central figure eleven year old Johnnie, the only boy in the Seventh B grade of the Longfellow school who did not possess a toothbrush. For weeks in hygiene class he had reported to the teacher, "No toothbrush!" and, consequently, for weeks, the grade of the class had stood at an ignominious C. At last the stigma had become too much for the class to bear. And so the boys had assembled with Johnnie in their midst to decide what should be done about getting him a toothbrush.

Poor Johnnie that day was in the deepest gloom of any boy in the Longfellow school. He was sternly warned that if he did not have a toothbrush by the time the hygiene class next assembled, the other fellows in the class would put their money together and buy him one. Mrs. Zoa Schnedler, physical training and hygiene instructor, was met by a radiant Johnnie when the Seventh B boys next assembled for their hygiene lesson. "I've got my toothbrush!" he announced triumphantly. The grade of the class that day soared to a brilliant "A."

This true incident illustrates the vital way in which the health and hygiene program in the Minneapolis public schools has gripped the imaginations of the boys and girls. The hero of the "gang" in a Minneapolis graded school is not the one who scorns to brush his teeth, drink milk, and sleep ten hours at night. Rather, he is the boy who has a 100 per cent record for good teeth, correct posture, and normal height and weight. The "Health Game" is one in which every child aspires to excel as earnestly as he aspires to excel in football, baseball, or track events.

The "Health Game," in its present form, introduced into the curriculum of the Minneapolis Public Schools, is the result of active cooperation between school superintendent, school board, and the men and women in the field. The Promotion of Health Committee of the Board of Education consists of the superintendent, William F. Webster, three members of the Board, and the health commissioner, who is also school health director. The committee has functioned almost three years and has met with unusual success in dealing with the obstacles common to cities of our class. It has been an interesting development. The job of health promotion which it assumes was then in its second stage of development, the first stage having been that of Medical Inspection, grandfather of all school health work, who made his first appearance in Minneapolis schools in 1909. The efforts of "Grandad Medical Inspection" were later merged into those of his son, Health Supervision, whose family now includes eight physicians, fifty-four nurses, three dentists, three dental hygienists, a dental supervisor, special hygiene instructors and a general hygiene instructor, nine bath attendants, and the necessary corps of stenographers and clerks. Next in the line of descent, the lusty grandchild, Game of Health, protegé of the promotion of health committee, is still in his infancy in Minneapolis, but he promises to become the sturdiest and most popular member of his dynasty. With the school children he has already won popularity which his forebears never enjoyed. Time was when the term "health" to the mind of the school child connoted the figure of the medical inspector, grim, black-bearded, with a high, black silk hat and a long, black satchel out of which came all sorts of nasty medicines and frightful instruments. Health inspection day was a day of dread in every classroom.

"Health" means something quite different to the Minneapolis school child today. It is as much a part of his daily education as arithmetic, gymnastics, or basket ball practice. In fact, the game of health is so closely linked up with all of the other games he plays, that he can no longer separate it from the others. To fail in the health test is as vital as to fail in a history test.

The game of health in Minneapolis Public Schools has five distinct aspects insofar as it makes an appeal to the child's pride and competitive instincts. Those five aspects involve instruction in dental, nutritional, and posture hygiene; physical training and athletics; and special activities for defective groups, such as the blind, cripples, deaf, tuberculous, and

With the assistance of 125 local dentists a dental survey of all Minneapolis school children was completed in thirty days. General health conditions of the pupils were also noted at this time.

subnormal. The normal child divides the game of health into the first four components. He must have a healthy, well-cared for set of teeth; he must eat and sleep properly in order to keep up the normal standard of height and weight; he must sit and stand and move correctly, in order that his body may grow straight; and he must make his mark in the gymnasium and on the athletic field. If he is a child with some physical handicap, he still carries on all those things, but he is first fitted into the special group to which he belongs in order that he may have a special chance to overcome that handicap and so measure up to normal standards.

To aid the normal child to attain the standards of health held before him, a number of specific agencies in the schools and also a number of extra educational agencies are at work in Minneapolis. In the schools there are special classes in hygiene instruction in the seventh and eighth grades; a system of physical education which starts the child's physical training as soon as he enters the fifth grade; an oral hygiene department which comprises dental clinics, and prophylactic instructional centers; and a system of "Health Habits," play which is begun in the kindergarten and carried throughout all the grades. Extra-educational agencies assisting in the health program include the Woman's Community Council, a private organization which operates ten demonstration nutrition clinics in the schools. The National Dairy Council assists the Woman's Community Council in promoting the establishment of milk stations for the undernourished children and also aids to establish the milk habit in the spoiled ones. The Board of Public Welfare is particularly interested in medical inspection in the schools. The Minneapolis District Dental Society last year contributed a unique and valuable dental survey of forty thousand children in the five primary grades of all the schools. The juvenile court and various private welfare agencies also assist in studying the problems which affect the school child's health and build up community safeguards which minister directly or indirectly to the physical welfare of all of the children.

Outstanding among health projects in the Minneapolis Public Schools last year was the extensive dental survey conducted by the oral hygiene committee of the Minneapolis District Dental Society, Dr. Elmer S. Best, chairman. This survey to which one hundred and twenty-five local dentists devoted their time gratuitously, assisted by the school board's dental supervisor, Dr. Denton White, was completed in approximately thirty days. The Society has pledged itself to repeat the survey on a still larger scale in the coming year. What the survey undertook to obtain was a record of the general health of each pupil, including not merely the condition of his teeth but also the condition of his tonsils, heart, eyes, ears, and his habits of eating, sleeping, and breathing. On each child's card were recorded thirty-seven facts, general condition of his teeth and descriptive of his general health, the general condition of his teeth and mouth, and the condition in detail of his six-year molars.

Some of the questions which the survey undertook to answer in forty thousand cases were: What is the child's general health? Good, fair, or poor? Are his tonsils defective? Has he cardiac trouble? Has he any eye defects? Has he any ear defects? Does he breathe through his mouth? Has he had any of the following: Measles, scarlet-fever, mumps, diphtheria, whooping cough, chicken pox, smallpox, pneumonia, and tonsilitis? Does he eat candy or pastry between meals? What is his home beverage, coffee, tea, or milk? Is his occlusion normal? What is his masticating efficiency? Does he use a toothbrush daily? Has he decayed or infected deciduous (baby) teeth? Are any of his permanent teeth missing, decayed, or infected? What is the condition of his six-year molars?

Acting upon the facts disclosed by this survey, the Board of Education proposes to inaugurate throughout the school system next year a series of lectures on dental hygiene. These lectures will be delivered by the teach-

The awe-inspiring formality of the old school medical inspection has given way to a fascinating game of health impressed on the child mind by pageantry and parade.

ers themselves, who will first be trained for the class. The lectures will be made more vivid by the display of large models of the human jaw with all its teeth, presenting a clear picture of what their own mouth should look like. Furthermore, dentists in the various districts of the city will be asked to lecture before the parents and teachers in their prospective districts, in order to stimulate the fullest possible cooperation in carrying out this educational program in the schools. Finally, dentists will be supplied with certificates, one of which will be filled out and given to each child as soon as his mouth has been put in good condition by the child's private dentist or the school clinics, as the case may be. Also, each school room will post lists of the "hundred per cent" children, and when a child has all the necessary dental work attended to, he will receive a star after his name. This will put the educational campaign on the competitive basis, which should help to stimulate the pupils' and parents' interest.

Arousing a good health consciousness in the mind of every individual pupil is the object of the special hygiene classes which are emerging out of the experimental stage into the stage of standardization in our schools. To head these classes, Miss Nettie Strate was appointed as a special hygiene supervisor last year. It has been found most practical to have the physical training instructors act also as the hygiene instructors, as they have the opportunity to study the child's temperament and habits at play as well as at work. In one particular graded school, where the hygiene program was most fully worked out last year, the seventh and eighth grade pupils were divided into sections, according to sex, and each section received one-half hour instruction in hygiene weekly. Since few precedents for such work were available, the instructor, Mrs. Zoe Schnedler, who also taught physical training, largely worked out her own ideas of instruction. Care of the teeth received special stress, and a demonstration of the proper way to brush the teeth was given before each class. A toothbrush inspection was also ordered and each child brought to the school the brush he was using at home. The inspection proved a profitable occasion for a lecture on the condition and proper care of the toothbrush.

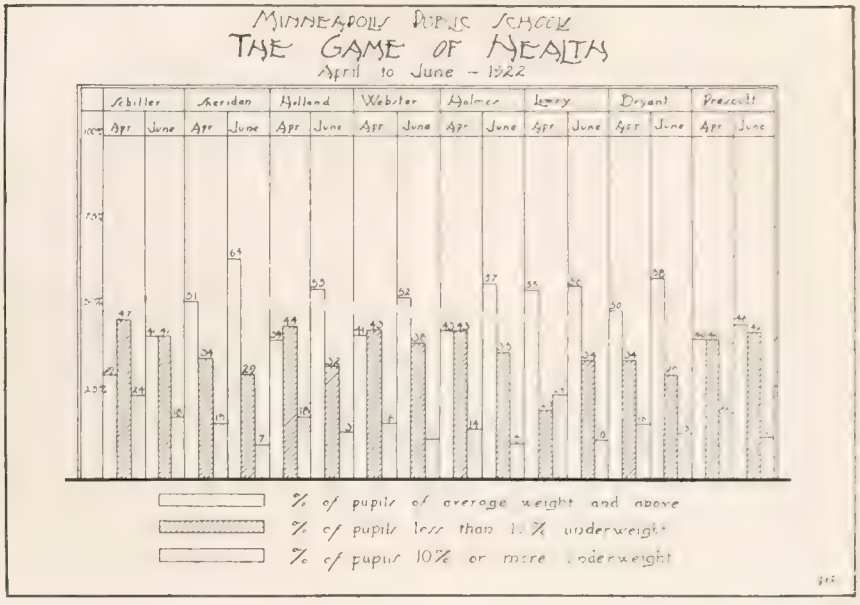


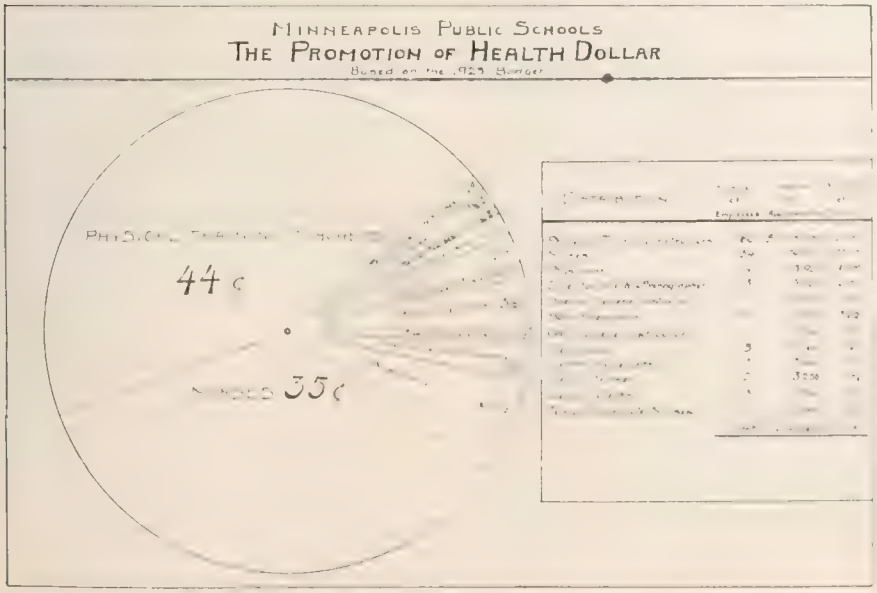
Chart showing gain in weight in Minneapolis schools during the two month period from April to June, 1922.

At the close of the inspection each child was given a card on which, for a month, he was required to record his daily toothbrushing habits. "The record for the first few days was poor, but it was almost perfect for all the classes by the end of the month," Mrs. Schnedler. "Scarcely any child's record fell below 50 per cent, and the average was about 90 per cent."

The "clean taste habit" was stressed by Mrs. Schnedler with gratifying results. It became a common incident for a child to confide, "I can't get up in the morning and eat breakfast without first brushing my teeth." The term, "garbage can" became a part of the class vernacular to designate decayed teeth; and every child, as rapidly as he could persuade his parents of the necessity, got rid of those sources of reproach.

In addition to dental hygiene, Mrs. Schnedler devoted much time to posture work. The triple posture test, administered by means of marching, standing, and general exercise, was conducted throughout the fifth to the eighth grades and the correlation between poor posture and poor scholarship, was noted in every individual case. Mrs. Schnedler's plan for the future is to conduct a posture clinic for the students having poor posture, and by means of special exercises to bring up their marks, both in posture and in scholarship.

The problem of nutrition was also attacked by the hygiene classes, as a means of supplementing the work of



The every day health work rests largely on the physical training teachers who receive 44 cents of the Promotion of Health Dollar.

the nutritional clinics operated by the Woman's Community Council. In the schools where those clinics were in operation, all the children were weighed and measured, and those found to be underweight were enrolled for clinic study. The homes were visited in order that the mothers might be taught proper feeding of their children. The school nurses and visitors cooperated in this enterprise wherever practicable.

During the past three years, five classes have been organized with an enrollment of one hundred and fifty children sent to the classes by the teachers and school nurses. The classes organized represented all types of children in Minneapolis, the Douglas School with children of the well-to-do people and living in one of the best residence districts; the Northeast Neighborhood House with children who attended the Day Nursery, all under school age; the Margaret Barry Settlement House, with children of varied nationalities, and including pupils from the Pierce School, Julia Ward Howe School, children of poorer families and living some distances from the center of the city. In all these classes practically the same percentage of underweight was found, that is, 25 per cent of the children were 10 per cent or more underweight. This proved to be rather a fatal blow to those who thought the idea was "to feed the poor."

An attempt was made to conduct the work as classes, but it was found that this required too much time from the classroom. The main idea in organizing has been to cut down time and to relieve the teachers from extra burdens. The children chosen were examined by Dr. N. O. Pearce, medical director, or someone of his staff. All children 10 per cent or more underweight were in the class whether "free to gain" or not. This was more or less a detriment to results as results, but has meant a great deal to parents in knowing that with physical defects the child cannot develop as rapidly.

In 1919 the work was carried on entirely through the mothers, nurses and doctors talking to them at stated times on the dangers of malnutrition and physical defects. Recognition of these outside agencies and thorough cooperation, as mentioned before, developed the work so that in 1921, two thousand children were weighed and measured and the weekly attendance reached four hundred and sixty-two in classes.

In the physical educational system in the graded schools, the beginning of correlation between nutrition and physical training has been worked out. A study has been made by the physical training director of the influence of systematic physical exercise not merely upon the child's posture and powers of coordination, but upon his development in height and weight. Statistics compiled by the director show that the average fifth grade child, before he enters upon a course of systematic physical training, is below the standard in height and weight, partly because of poor posture, poor teeth, or other unremedied physical defects. Given a set of favorable factors, including the removal of physical defects and the aid of food, sleep, and the rest program promoted by the nutritional classes, the average child by the time he graduates from the eighth grade after four years of carefully planned physical training has attained the standard height and weight and, in some cases in Minneapolis, has been found to exceed the standard.

The physical training program in the grades comprises what are termed "efficiency tests" in addition to regular gymnastics and athletics. Every child is compelled to practice these efficiency tests which are often different for boys and girls and are changed every month. The following were the efficiency tests given last year: October, boys and girls, playground ball throw; November, boys and girls, basketball goal throw; January, boys, chin the bar; girls, basketball throw; February, boys and girls, Indian club race; March, boys, pushup; girls, run and catch; April, boys, hop, step, and jump; girls, basketball throw; May, boys and girls, 50-yard dash.

"By means of these simple tests, given as a compulsory part of the physical education program, the maximum number of pupils take part in athletic events, which are both pleasant and beneficial," said Mr. Tapp. "The events selected encourage all-round physical development because of their varied nature. Exercise of the large muscle group is encouraged, thus satisfying the need for a type of exercise fundamentally beneficial to the growing boy and girl."

Special health projects in Minneapolis Public Schools comprise classes in sight saving for pupils with defective eye-sight, classes for the blind, deaf, sub-normal, crippled, and for pupils with defective speech. Here again outside organizations have played their part. The Anti-Tuberculosis Society, the Society for the Advancement of the Deaf, the Society for the Advancement of the Blind, must be mentioned. The work of the Rotary Club and the Elks' Club in behalf of crippled children has, in Minneapolis, given these organizations another good reason for existence.

A special school for crippled children, named "The Michael Dowling School," after Minnesota's late crippled statesman, was established in March, 1920. The school now has an enrollment of more than one hundred. The children are taken to and from school in busses, and receive in school not merely class work but medical treatment.

Minneapolis has two schools for its tuberculous school children. This work is in charge of Miss Kathryn Young. The Trudeau Open Air School is now in its tenth year, and has an enrollment of one hundred. It takes care of the more severe incipient cases, while the Lymanhurst School, founded in conjunction with the Lymanhurst Children's Hospital and proposed health center, enrolls the mild cases and gives them similar open air treatment and dietetic care.

The Lymanhurst School has completed its first year, and Dr. F. E. Harrington, school medical director, reports that in twelve months there were admitted to the school, one hundred and ninety-nine children, while eighty-five were discharged to be enrolled in normal classes. An out patient dispensary was established in connection with the school last January and since that time between two hundred and three hundred children have been examined in the dispensary. The school also provides observation wards for suspected cases of open tuberculosis.

Figures gathered by the National Committee for the Prevention of Blindness in the Russell Sage Foundation Building, 130 East Twenty-second Street, show that during the first half of 1922 wood alcohol caused 130 deaths and 22 cases of blindness. It was announced that more than half of the 130 fatal cases brought to the attention of the National Committee for the Prevention of Blindness during the first six months of this year were in New York, New Jersey, and Pennsylvania. Forty-five fatalities were reported in New York, 28 in New Jersey, and 15 in Pennsylvania. Five deaths were reported in Texas and four each in Connecticut, Massachusetts, Ohio and Missouri. In the first twelve days of this year 103 of the 130 deaths were reported.

Dispensary System of U. S. Veterans' Bureau

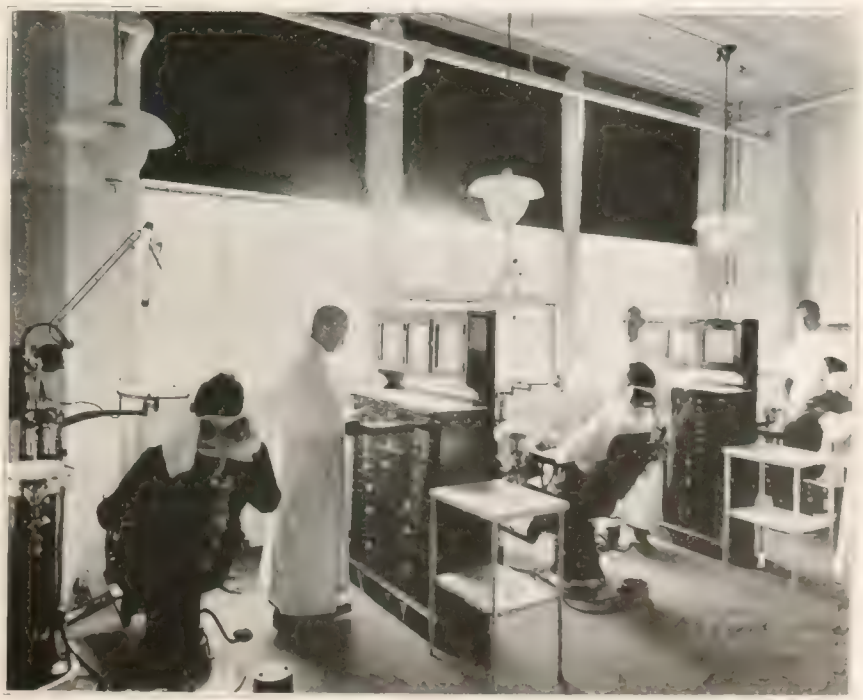
By KARL SCHAFFLE, Passed Assistant Surgeon (R) U. S. Public Health Service, Assistant Chief District Medical Service, U. S. Veterans' Bureau, Washington, D. C.

CONSPICUOUS among the features of the law* by which the U. S. Veterans' Bureau was established was the provision for a comprehensive system of dispensaries. This measure was evolved from the experience of the three organizations which had been concerned previously with all of the functions assumed by the new bureau, the Federal Board for Vocational Education, the U. S. Public Health Service, and the Bureau of War Risk Insurance. The objects to be gained are to afford prompt service in the establishment of claims for disability incident to military duty and in furnishing medical treatment to claimants, including hospital care; the determination of their fitness for vocational training; the provision for after care or observation of convalescent and "follow-up" of post-convalescent cases; and the prevention of unnecessary hospitalization or other government expenditure.

The law provided for the establishment of one hundred and forty offices to be distributed among the fourteen districts into which the country had been divided for the administration of the War Risk Insurance Act. In each district there is a headquarter's office located in the chief city and an average of nine sub-district offices at other important centers. Thus, by providing a dispensary for each district and sub-district office throughout the United States, the process of decentralization is rendered most effective by bringing the means of satisfying the various medical, economic, and social needs of the disabled veteran, in the great majority of cases, to his very door.

In order to supply the services required, it was necessary to utilize the recent conception of "group diagnosis" combined with the accepted methods of modern social service. Thus, in addition to the superior facilities afforded, the responsibility for adjustment of claims against the Government is shared by a number of physicians rather than borne by a single individual. This involved the formation of units, comprising representatives of every medical specialty including dentistry, together with social workers or "follow-up" nurses and the necessary administrative force with sufficient facilities to function adequately. Such organization had been anticipated by the U. S. Public Health Service, which in addition to its extensive system of hospitals and relief stations, created many local groups of specialists who cooperate under the supervision of an administrative officer or worked together in an examining office or dispensary. As a first step, therefore, all personnel, space, and equipment which had been devoted to War Risk work by the Public Health Service was transferred to the Veterans' Bureau. It was then necessary to create new units and to adopt a comprehensive scheme of organization for the whole dispensary system. The necessity for immediate standardization of method and equipment was obvious. Accordingly, a survey was made of the outpatient facilities of existing government agencies and certain leading civilian institutions, and an extensive study of the exact needs presented by the special class of beneficiary under consideration.

The needs of the veterans are those primarily of that interesting cross section of the population which normally should be at the beginning of the most productive period of life but in which even under ordinary conditions there is the greatest incidence of active tuberculosis, venereal infections, and certain of the psychoses. There is also to be considered the personal attitude peculiar to this age, with its ambitions, freedom of expression, and impatience of restraint. Added to these elements are the effects of the stress of war, the lesions incident thereto, and the enforced idleness and anxiety due to disability. The result is an aggregation of chronic and acute conditions which must be sifted out for treatment while at the same time the individuality of the patient must not be over-looked. Such a situation consisting as it does of large numbers of presumably normal, chronic, and obscure conditions presents every indication for "group diagnosis." As a consequence it was necessary to assemble representatives of all of the leading specialities, with particular provision for the two conditions which are the leading and as yet unabated causes of disability, tuberculosis, and nervous and mental disease in each of which prompt recog-



Dental Section of Detroit dispensary maintained by the U. S. Veterans' Bureau. The Detroit dispensary is one of the 140 authorized by law.

*"An act to establish a Veteran's Bureau and to improve the facilities and services of such bureau and further to amend and modify the War Risk Insurance Act. August 9, 1921."

Medical division of Detroit dispensary.

nition of early pathology and careful "follow-up" of old cases is so essential.

In the course of adaptation of the best features of modern agencies to the conditions mentioned certain general principles became manifest. The chief of these were that the physical plant must be comfortable, sanitary, dignified, and attractive, that the "lay-out" should favor a one-way traffic through the various clinics and departments with the avoidance of confusion, and that provision must be made for ease of access between related units, such as the reception room with the information desk, the social service department with the waiting-room, the x-ray with the tuberculosis, dental, and orthopedic sections, the clinical laboratory with the urologic and medical clinics, and the rest-rooms with the physiotherapy and dental departments.

The outcome of the study of the problems presented as applied to the country at large was the adoption of a classification of dispensaries according to the size or special needs of the section to be served. Thus, three types of dispensaries were decided upon, as follows:

Type A.—Consists of a complete unit, comprising clinics in internal medicine, general surgery, tuberculosis, neuro-psychiatry ophthalmology, diseases of the ear, nose, and throat, urology, orthopedics, physiotherapy, dentistry, x-ray, clinical laboratory, and pharmacy, with facilities for administration and social service, occupying approximately 8,500 square feet of floor space.

Type B.—Consists of a similar unit in which the surgical clinic embraces urology and orthopedics, the dental clinic has two chairs instead of six, and the section of physiotherapy is omitted. The floor space occupied is 4,216 square feet.

Type C.—Consists simply of clinics in medicine, surgery, and eye, ear, nose and throat, with a small clinical laboratory, one dental chair and an x-ray if x-ray contracts justify its establishment, and occupies 2,352 square feet.

The following standards were adopted for the allocation of floor space:

Class A Dispensary

Place	Size of Room	Total Sq. Ft.
Executive office	20x20	400
Stenographer's office	20x20	400
Files	10x16	160
Admission, loss and records	20x16	320
Waiting room	20x32	640
General diagnosis (3 rooms, each	10x12	720
Internal medical consultant	10x12	120
Tuberculosis consultant	10x12	120
Neuro-psychiatric consultant	10x12	120
Eye	20x12	240
Dark room	8x10	80
Ear, nose and throat	16x16	256
Surgery	20x16	320
Store room	10x12	120
Orthopedic	16x16	256
Physio-therapy:		
1. Hydro-therapy	20x16	320
2. Electro-therapy	10x16	160
3. Thermo-therapy	10x16	160
Dressing cubicles, store room and massage	10x16	160
X-Ray:		
1. Exposure room	10x16	160
2. Dark room	6x8	48
3. Machine room	6x8	48
Clinical laboratory	12x16	192
Pharmacy	12x16	192
Dental clinic (6 chairs)	12x60	720
Dental laboratory	12x12	120
General supply room	10x12	120
General store room	24x32	768
Toilet rooms (3), each	16x12	576
Women's rest room	12x16	192
Patients' emergency rest room	20x20	400
Total number of rooms	38	8,448

Class B Dispensary

Place	Size of Room	Total Sq. Ft.
Administrative office	20x16	320
Clerical office	20x16	320
Waiting room	20x20	400
General examination rooms (6), each	10x12	720
Surgical clinic	20x16	320
Eye	20x8	160
Dark room	8x10	80
Ear, nose and throat	10x16	160
Dental clinic (2 chairs and laboratory)	30x12	360
X-Ray	10x16	160
Dark room	6x8	48
Clinical laboratory	10x16	160
Pharmacy	12x16	192
Emergency rest room	16x16	256
Store room	20x16	320
Toilet rooms (2), each	10x12	240
Total number of rooms	22	4,216

Class C Dispensary

Place	Size of Room	Total Sq. Ft.
Administrative office	12x12	144
Clerical office	16x16	256
Waiting room	16x16	256
Medical clinic, general medicine chest, and neuro-psychiatry (3 rooms), each	10x12	360
Surgical clinic	16x16	256
Eye, ear, nose and throat clinic	20x8	160
Dark room	6x8	48
Dental clinic (1 chair and laboratory)	20x12	240
Clinical laboratory	10x8	80
X-Ray	10x16	160
Dark room	8x10	80
Pharmacy	12x16	192
Store room	10x12	120
Total number of rooms	15	2,352

The personnel to man the three types of dispensary was standardized according to the following table:

Personnel Class A Dispensary

1 Medical officer in charge.

1 Chief examiner.

6 General examiners (full time).

1 Tuberculosis specialist (full time or part time).

1 Assistant tuberculosis specialist (full time).

1 Neuro-psychiatric specialist (full time or part time).

1 Assistant neuro-psychiatric specialist (full time).

1 Attending specialist internal medicine (full time or part time).

1 Attending specialist surgery (full time or part time).

1 Assistant attending specialist surgery (full time).

1 Attending specialist orthopedics (full time or part time).

1 Assistant attending specialist orthopedics (full time).

1 Attending specialist eye (full time or part time).

1 Assistant attending specialist eye (full time).

1 Attending specialist ear, nose and throat (full time or part time).

1 Assistant attending ear, nose and throat specialist (full time).

1 Attending specialist physio-therapy (part time).
3 Aides physiotherapy (full time).
1 Attending specialist x-ray (full time or part time).
6 Dental examiners (full time).
1 Pharmacist.
1 X-ray technician.
1 Laboratory technician.
1 Dental technician.
3 Nurses.
6 Stenographers.
4 Typists.
5 Clerks (1 admission clerk, 2 record clerks, 2 file clerks).
1 Orderly.
Total medical examiners 29
Total technical personnel 10
Total clerical personnel 16
Total personnel 55

Personnel Class B Dispensary

1 Medical officer in charge.
2 General medical examiners.
1 Tuberculosis specialist.
1 Neuro-psychiatric specialist.
2 Dental examiners.
2 Attending specialists eye, ear, nose and throat (one-half time).
1 Attending specialists surgery (part time).
1 Attending specialist internal medicine (part time).
1 Attending specialist x-ray (part time).
1 Pharmacist.
1 X-ray technician.
1 Laboratory technician.
2 Nurses.
3 Stenographers.
3 Typists.
3 Clerks.
1 Orderly.
Total medical examiners 12
Total technical personnel 5
Total clerical personnel 10
Total personnel 27

Personnel Class C Dispensary

1 Medical officer in charge.
1 Medical examiner.
1 Dental examiner
1 Attending specialist in tuberculosis, neuro-psychiatry, eye, ear, nose and throat and x-ray respectively.
1 Nurse.
1 Pharmacist.
1 X-ray technician.
I Laboratory technician.
1 Stenographer.
2 Clerk typists.
Total medical 7
Total technical 4
Total clerical 3
Total personnel 14

The standardization of dispensary equipment was effected by investigation of the relative merits of the different types of apparatus designed for similar purposes and the selection of the most satisfactory. All equipment was then grouped and listed by units to correspond with the various clinics and departments. By this means it is possible to expedite requisitions either for an entire dispensary or for some particular clinic when sudden growth of service requires prompt expansion of facilities.

Dispensaries of the type of Class "A" were established in the nineteen leading cities of the United States, including the fourteen district headquarters. Seventeen dispensaries of the type of Class "B" have been opened or are about to open in the remaining cities which exceed two hundred thousand population. Class "C" dispensaries are being established in the one hundred and three remaining cities in which there are sub-district offices.

A summary of dispensary procedure as it affects the patient is as follows: At the first visit the ex-service man or woman is referred by the information clerk to the registrar who enters the name, address, age, occupation, military organization, length of service, and other essential data upon a card and refers the patient to a general examiner. The general examiner takes the medical and service history and makes a complete physical examination which includes a record of the height, weight, blood-pressure, and vital signs. He then refers the patient to the specialists whom he considers it necessary for him to see in order to complete the diagnosis. The laboratory tests required in his case are then performed and the patient is referred back to the general examiner. This physician assembles all of the reports and if necessary holds a consultation with his colleagues and makes a final diagnosis and outlines the treatment. He is responsible for hospitalization if it is indicated and for the determination of the patient's general fitness for vocational training when the time arrives.

The general examiner supplements his medical treatment by attention to the social and economic status of the patient and calls upon the "follow-up" nurse or social workers or the representative of the proper veterans' or other welfare organization for cooperation when such service is required.

The entire procedure may take a short time or may extend over a considerable period depending upon the nature of the case. The use of routing-cards, messengers, and annunciators has proved of great value in convoying the patient, safe-guarding his records, and reducing the time consumed.

American Hospital Association at Atlantic City

Hospitals should be centers of social service, especially in the way of hygiene instruction in prevention, was the statement of Dr. George D. O'Hanlon, president of the American Hospital Association, in his opening address at the twenty-fourth annual convention at Atlantic City, N. J., September 25-29.

Hospital officials should have a large and inviting field of labor in prevention, Dr. O'Hanlon believes. "The hospital superintendent who does not see opportunities for work beyond the restricted horizon of his hospital enclosure is shortsighted and misses his opportunities for the best work."

The outpatient department offers a rich field for exploitation, Dr. O'Hanlon further stated. In the development of this branch, follow up care will not only be exercised but the hospital will be relieved of the strain of providing beds for ambulatory cases.

The phenomenal growth of hospital service was pointed out by Dr. O'Hanlon. Fifty years ago only 140 hospitals including institutions for the insane were in operation in the United States while today there are 7,000, an increase of 5,000 per cent. The first ambulance service in the world connected with a general hospital was established in New York City in 1869 while the oldest training school is not yet fifty years old. Further progress is shown in the fact that while the first school connected with a hospital for the practical training of midwives was opened in 1911, today twenty-eight states have laws regulating their practice. Social service, which has come to have a recognized place in the hospital, dates back only seventeen years.

In 1883, Detroit, with its 127,000 inhabitants, spent $7,054 on public health, or about 5½ cents per capita. In 1921, with 942,000 people, Detroit spent $1,527,355 for the maintenance of the Health Department, or $1.62 per capita. Of this sum, 73 cents was devoted to the maintenance of the Herman Kiefer Hospital. The maintenance item is 89 cents per capita.

Institution Records of Value to Inspectors*

Detailed Reports Aid Inspection and Make for Hospital Standardization

By RANSOM A. GREENE, Assistant to the Commissioner, Department of Mental Diseases, Boston, Mass.

IN discussing hospital records of value to inspectors, any one of the hospital records is of such importance that a detailed study is required as well as advice in some cases from the standpoint of an efficiency expert to assure the content of records giving the desired information sufficiently complete and accurate to satisfy critical inspection.

Since the subject is so involved it may be well to outline briefly the methods adopted by the Massachusetts Department of Mental Diseases, the aims and purposes of which are twofold.

Records in Massachusetts to be of value must be of such character that the purpose of the hospital are served, the hospital having to deal with the individual, with the individual's most interested relatives or friends, and sometimes with a most critical public. On the other hand, there are in our group fifteen state hospitals and about twenty-five private hospitals over the latter of which we exercise certain legal and supervisory powers. In state hospitals alone caring for approximately twenty thousand persons are involved legal and financial considerations to be presented to legislative bodies, the administrative council, and to the Governor.

It is therefore the purpose of the department in its supervision to maintain an inspection of state hospitals in particular which in a general way includes the following principles. (1) Standardization as to personnel, grades, pay, and quota; standardization of food as to its quality, amount, and balance; uniformity of case records; standard requirements in nurses' training schools. It seems best that hospitals should have approximately a capacity of two thousand beds. (2) Each hospital should maintain an outpatient department or clinic. (3) Each hospital should have a board of trustees and, where available, a visiting or consulting staff as well as resident staff. (4) The hospital administration should be directly under the leadership of a medical man trained in psychiatry. (5) The ratio of medical officers should be 1 to 135. (6) Staff conferences should be conducted daily if possible for the purposes of diagnosis, outlining treatment, settling questions of parole, visit, or discharge, and for making social service recommendations and recommendations to courts on observation commitments. (7) Each hospital should have a receiving ward or observation department. (8) The group of hospitals should be so classified that some may be selected for individual purposes and research, including one or more strictly psychopathic hospitals where intensive studies and utilitarian observations can be made for large centers of population. (9) Laboratories for bacteriological, chemical, and biological tests of general medical diseases as well as mental diseases should be maintained. (10) Hospital equipment should include hydro-electric occupational paraphernalia as well as general and special surgical and dental facilities. (11) They should have an adequate nursing force of standardized quota and grade in the ratio of at least 1 to 10 patients and some female nurses on male reception wards. (12) A social service department of 1 to 3 workers at least. (13) Recreation and diversion together with library facilities should be uniformly provided.

Duties of Inspector

From the standpoint of inspection of records, it is the policy that at regular intervals the institutions be visited. The nature of institutions are such that a medical man is required for these inspections. His duties should be the visitation of hospitals to observe the general morale, to attend and observe conduct of staff conferences, to rate in a general way quality of work done by various members of the staff, character or work on wards and apparent condition of patients. He should go over records of commitment since last visit and determine if admissions to the hospital are on proper legal basis. Incidentally, Massachusetts probably has more forms of admission and commitment to state hospitals than most other states, about twelve in all. He should examine in a general way into the various therapeutic functions of the hospital from a medical standpoint, the medical, occupational, surgical, and dental work, as well as accomplishments in the laboratory and researches of the pathologist.

From a physical standpoint, he should examine the property as to general repair, housekeeping, progress of new construction, fire apparatus, heating, water and sewage systems, bathing facilities, culinary and dining-room conditions, laundry, and appropriate and proper clothing of inmates.

Regarding records and reports, there is a system of annual, semi-annual, monthly, weekly, and daily returns to inspect.

With the farm, there are the records of milk production, reports of tubercular tests or cholera immunizations, reports of farm production and disposal of them, including work done on grounds and in stables.

In the steward's department there should be available a store room account, incoming and dispersal, so that at all times an inventory of any specific article could be readily shown on his books. He should also have a budget analysis showing his expenditures, according to ration or other allowance by the month and a similar record for expenditures on repairs, renewals, and special appropriations.

There should be weekly dietaries for various groups fed, including officers, employees, and patients. Records should be kept indicating by weight the amount of waste from kitchens and dining-rooms that comparisons might be made with ration allowance fed to pork and poultry products of farm. Coal consumption should be recorded that comparisons may be made with power, heat, and light reports.

In the treasurer's office there should be records of cash schedules, including paid and unpaid bills, advancements from state treasurer, analysis on monthly basis to compare with budget allowance and payroll, personal service quota, classification quota and time books, records of bills

*Read before the Forty-Ninth Annual Meeting of the National Conference of Social Work, Providence, R. I., June 22 to 29, 1922.

for private support and partial reimbursements for patients' care, valuables, and patients' cash records. Inspection of above records require and have the service of an accountant from the state auditing department.

Inspection of clerks' records would include patients' individual record, which records are uniform in all hospitals and include a prescribed form of front sheet, giving the more important statistical data as to name, age, birthplace, parentage, discharge, residence, and occupation, and contain all data used on statistical cards for making report based on the statistical manual of the National Committee on Mental Hygiene. The body of record should include, first, an abstract of case followed by family history, personal history, physical examination, mental examination, psychological examination, treatment and laboratory charts, first day, third day, seventh day, tenth day, quarterly, semi-annual and annual notes, and social service record if patient has been under the consideration of that department.

In the clerks' department there would also be the ward day and night reports and census, daily and weekly, daily temperature records from wards, fire drills, restraints, seclusions, accidents of sudden deaths, narcotic, drug and alcohol records, pharmacy, library, and entertainment records. The foregoing records would be those in which the medical inspector or investigator would be concerned.

From the various institutions there would come to the office of the department a duplication of such records for their use for compilation of statistics and purposes of supervisory administration and laying down of broad general policies. In the office of the department, other than the medical inspector, there was in 1918 established a farm investigator who deals specifically with the agricultural interests of the institution and bases recommendations for standardization on such inspections and farm records.

The social service has for some time had a department head who deals specifically with social service problems for the purpose of correlating and coordinating the work.

In the business agent's office there has this year been added an engineer who deals with engineering problems and new construction. The business agent's department has for some time by means of holding monthly meetings of the various stewards directed the work of combination buying and the making of term contracts for food and other supplies, including coal and new construction contracts. All institutions participate equally in the advantages of such purchase as well as standardization of quality of supplies.

The assistant commissioner reviews daily the reports of commitments. On the basis of these and with weekly and monthly census returns he establishes equalization of population by notification to the courts and transfer of patients. He also, through a system of investigation from the support department whose agents visit all new admissions, determines the persons subject to deportation and arranges for the same. The support department also conducts its investigation as to the finances of the patient and arranges maintenance or partial reimbursement for patients.

Insofar as the department has developed, the records are commensurate with the needs and answer the purposes of outgoing inquiry and incoming information. Further developments and new divisions are in contemplation and will require much study previous to establishment. The most recent and difficult problem is that of the division for feebleminded where the department has already in progress a state-wide census including clinics for all children of the public schools that are three or more years retarded in school work.

Housing for Employed Women

ANYONE who stops to consider that of twelve million working women in the United States a large proportion do not live at home will realize that housing for working women is indeed a problem. Even where there are available rooms landladies proverbially desire men roomers. Many organizations have sought to alleviate this situation and foremost among them has been the Y. W. C. A. which for years has attempted to furnish suitable dormitory accommodations for girls.

The dormitory in the activities building grew out of the need for living quarters for girls who were strange to the city or who had no suitable rooming place. From an economic as well as from a health viewpoint, this plan has not proved wholly successful, Blanche Geary of the Architectural and Economic Bureau of the National Board, Y. W. C. A., points out. In the first place, the activities building is usually located in the heart of the business district where noise, heat, and lack of fresh air make living conditions uncomfortable. Such buildings necessarily occupy high priced lots and are of expensive construction, and the devoting of several stories of such a structure to living quarters entails needless cost.

The present plan which the Y. W. C. A. considers the most feasible is the construction of special dormitory buildings in resident districts on quiet, well paved streets. Such buildings to be operated on a 4 to 6 per cent return on the entire investment in land, construction, and equipment. For a metropolitan city in which a fireproof building must be erected on the least possible land, 60x100 feet is sufficient providing elevators are installed and a high building is desirable. For a lower building of basement, ground floor, and two stories 180x125 feet is required.

In such a building bedrooms should be single and should have a plastered closet and a complete set of furniture including an iron bed with hair mattress and good pillow, a bureau or chest of drawers with mirror, a table for sewing, books, and writing, three or four shelves over the table, two chairs, one straight and one low easy chair not a rocker, and a rug.

Plumbing should be grouped in convenient locations in the proportion of five beds to one bath, six beds to one toilet, and five beds to one wash-basin. Each wash-basin should be enclosed in a partition with door to insure privacy. There should be one sink on each floor for the use of scrubwomen.

The building should also contain a laundry for the residents' use with possibly twenty-four washtubs, with steam dryers, and six to eight ironing boards; a trunk room to accommodate one trunk to each bed; an infirmary for doubtful or contagious cases pending removal or other temporary service. If space permits, the building should be equipped with a kitchenette with sink, gas ring, and small china closet, and with a sewing room with large cutting table, iron, mirror, and sewing machine. The dining room should be large enough to seat the full number of resid-

Health Activities in a Recreational Program

By THADDEUS SLESZYNSKI, Director, Holstein Park Recreation Center, Chicago, Illinois.

THE new child health program with its emphasis on weighing and measuring, on playing the health game, on nutrition classes, on more thorough physical examinations, and on a better adjustment of the child's daily program to his physical needs—has it a place in the playgrounds and recreation centers as well as in the schools? If not, the recreation centers and playgrounds should cooperate with the schools and health agencies at least to the extent of not undoing the work that these agencies are trying to accomplish. If so, recreation workers need to determine what adjustments in the recreational program are necessary to make a constructive contribution toward raising the health standards of the next generation. In either case, both recreation and health workers should consider what are the relationships of this new health program to the recreational activities as they have been developed in our centers and playgrounds.

With the rapid growth of the playground movement and in the effort to serve as large numbers as possible, the recognition of different individual needs has been overlooked. Physical educators have always insisted on a physical examination as a prerequisite to meeting the individual needs of their students, a principle which has been followed in practically all our institutions of higher education. Many public schools throughout the country have also come to regard this as a necessary part of physical training and athletics. The development of medical inspection in the schools has emphasized the need of adjusting the child's daily program to his physical capacity. However, in our recreation centers and playgrounds with their fully equipped gymnasiums in charge of trained instructors, children and young people are often enrolled without even a superficial physical examination or the simplest heart test. The scales generally found in the boys' gymnasium are used chiefly to determine the eligibility of boys and young men to participate in athletic events in which classification is made according to weight. Many instructors indiscriminately permit these participants to reduce in weight in order to become eligible to play on teams on which they are needed.

Athletic tests are given in which every "healthy boy and girl" is encouraged to participate, but no effort is made to determine who are healthy. Several of the tests for girls as well as for the boys are purely endurance tests in which the children tend to exert themselves to the limit of their strength. It has been estimated that in some communities the physical standard of the young people has been raised as much as thirty per cent through these tests, but it is quite as possible that the health standard of the group might have been lowered at the same time, or at least remained unimproved. Clearly, it becomes the task of the recreation worker to find out the facts.

Recreation workers do not usually make use of the health service of the public school. Though the school physicians and nurses are attempting to improve the physical condition of many of the children who attend the recreation centers and playgrounds after school hours, the recreation workers take no account of this. An incident which took place in a school in the neighborhood of Holstein Park well illustrates the need for closer cooperation between the two agencies. The principal of the school told a boy suffering from hernia that the doctor had forbidden him to take part in any of the physical training and athletic activities, but met with the reply, "I don't care, I can go to Holstein Park and get all the athletics I want."

A similar lack of coordination is evident between the work of the health agencies and the recreation centers. A boy who participates in all the activities of the center and who is there most of the time, early and late, but who appeared to be in poor physical condition was found on questioning to have attended the nutrition class at the Municipal Tuberculosis Dispensary for more than a year. He had discontinued attendance because he did not want to re-

Holstein Park Recreation Center is a typical recreation plant. Millions of dollars have been spent throughout the country on community houses of this character. Few of them are being used to full capacity. The question is raised whether they could not be utilized more intensively for raising the health standards of their communities.

"Chinning," an athletic test for boys, really an endurance test. This boy is one of the most active boys at the playground. The nutrition worker at the Municipal Tuberculosis Dispensary had urged him to rest but at the center he had been permitted to be active all the time.

main at the summer camp of the Municipal Tuberculosis Sanitarium, where he was sent the previous summer. The records at the Dispensary show that he has tuberculous glands, and that he has not been a cooperative patient. His physical condition demands that some adjustment be made in his daily program, but the recreation center had unwittingly been undoing what the Municipal Tuberculosis Dispensary was trying to accomplish.

Progress in Coordination

Some progress has already been made in coordinating health activities with recreation programs. The Public Athletic League-Children's Playground Association, of Baltimore, employs a public health nurse as supervisor of its health department. For the past few summers health activities have been conducted in all the playgrounds under the jurisdiction of this organization. With the cooperation of the Maryland Tuberculosis Association, the Modern Health Crusade has been introduced. Every summer all the playgrounds make competitive effort for the highest standing in this activity. The children are weighed and measured in most of the playgrounds. Health poster contests are held and health plays are given. Special talks on health subjects are arranged and demonstrations in home nursing for "little mothers" are given. The playgrounds of Newton, Mass., have a supervisor of health work, and health instruction has been given through the medium of play. Children were enrolled in the Game of Health and many common games have been adapted for use in putting across the health message.

In Cleveland, half pint bottles of milk are sold at cost in all the playgrounds under the direction of the Cleveland Summer Milk Booth Association, in order that children who have formed the habit of drinking milk in the schools should have every opportunity to obtain it in the summer, instead of reverting to pop and all day suckers.

At the Lake Shore Playground in Chicago a director, who was a medical student, introduced physical examinations for all boys and girls attending the gymnasium classes. The service was appreciated by the young people, and some very helpful advice was given on the basis of the findings made. The work has received less attention since the director resigned and another non-medical director appointed. There are no doubt many other communities in which some health work has been attempted in the recreation centers and playgrounds.

Holstein Park Experiment

At Holstein Park Playground and Recreation Center an intensive experiment has been conducted during the past school vacation with the cooperation of the Elizabeth McCormick Memorial Fund, the Chicago Tuberculosis Institute, the Michael Reese Tonsil and Adenoid Clinic, the Municipal Tuberculosis Dispensary and a neighborhood physician, Dr. S. Musial.

Literature explaining the Modern Health Crusade was distributed to more than two hundred children attending the playground. Those who enrolled were weighed and measured. The records of one hundred eighty-nine boys and girls include forty-five, or 25 per cent who are 10 per cent or more under weight for their height, according to the schedule of Dr. Wm. R. P. Emerson. Meetings of the Modern Health Crusaders, with an average attendance of forty have been held every Wednesday, at which the children report their progress. At these meetings activities have been scheduled similar to those arranged in the playgrounds of Baltimore. Naturally the results have not been as satisfactory as in Baltimore because there is lacking the spirit of competition with other playgrounds.

A physical examination was offered to those boys and girls who were most underweight or who on inspection by the nurse appeared to be in greatest need of medical advice. To September 1, thirty-seven children were examined either by Dr. Musial or at the Municipal Tuberculosis Dispensary. In every case one or more physical defects were found, and the questioning of parents and children disclosed bad health and food habits on the part of those affected. Twenty-one children were referred to a throat specialist for examination. Eighteen of them followed this advice and of these, sixteen were advised to have their tonsils removed. Thirteen have already had the tonsilectomy performed and one other has made arrangements for this. In only five of these sixteen cases had the patients realized the diseased condition of their tonsils. In thirty-four cases dental treatment was advised and secured.

Twenty of the thirty-seven children who were given physical examinations have been under close supervision through attendance at a Nutrition Class which meets every Monday. The progress of this group during the ten vacation weeks has not been satisfactory as compared with that made

"Balancing Beam," a test [illegible]

by other classes. However, there are certain facts that must be considered. Ten of the fourteen who had diseased tonsils had a tonsilectomy performed before the end of the vacation period. Practically all of the children attend the playground regularly and have found it difficult to refrain from strenuous play and to take the rest periods as prescribed. Furthermore, five of the girls entered the athletic badge tests, three of them having had their tonsils removed about the same time. Two of these girls made the highest record required for older girls on the traveling rings—one hundred in one continuous trip. Not one of the five made more than the average gain in weight for the ten weeks, and two made no gain at all. Though there may be differences of opinion concerning the relation of weight to undernourishment, most physicians would not approve of endurance tests for children under medical supervision for undernourishment or the correction of physical defects. The children who voluntarily submitted to physical examinations were not discriminated against in these tests because that might make the examinations unpopular during this initial period.

Of the forty-four girls entering the athletic badge tests who were weighed and measured, only fifteen were found to be up to weight for height. Out of twenty-seven girls who won either a gold, silver, or bronze pin, only eleven were up to weight for height. Only one of the seven girls who won gold pins was up to weight. Had physical examinations of the whole number been made, there would no doubt have been disclosed other cases of undernourishment and physical defects.

The facts gleaned from the brief experience indicate that there is a danger of recreation centers and playgrounds running counter to what the schools and health agencies are trying to accomplish, by permitting all children to take part in any and all athletic activities without any attempt being made to classify them according to their physical capacity, leaving the choice of activities entirely to the inclination of the individual child. Herein lies an opportunity for greater service which the recreation workers should not be slow to grasp. As the responsibility of the school for the physical welfare of the children has increased, so must the playgrounds aim to do more than keep the children off the street and give them a good time.

"Traveling Rings," an athletic test for boys and girls. Nine girls who were under medical supervision attempted to travel one hundred rings in order to make the maximum of one hundred points to be counted toward the winning of an athletic badge. This exertion to attain a high physical rating inevitably interfered with success in raising their health standard.

Plan for the Future

This experience during the summer months has suggested a health program which will fit in with the indoor activities of the recreation centers of Chicago. Mr. V. K. Brown, Superintendent of Playgrounds of the South Park Commissioners, has pointed out the necessity of putting a new activity like a Good Health Club on a competitive basis so that the rating of a club and its members might be measured in the same manner as are measured achievements in the already existing activities. Keeping this point in mind, we have outlined a plan for marking the standing and progress of the health clubs and their individual members so that they might be compared with one another. A rating will be given on each of the following points: (1) Report of physical examination, the report to be on a standard blank provided by the recreation center. (2) The physical condition as revealed in the report. (3) Weight as compared with height, (this item might be omitted if there is a disagreement as to the importance of this relationship.) (4) Some gain in weight. (All normal growing children should make some gain in weight). (5) Cleanliness and general physical appearance.

This girl cannot participate in athletics on account of cardiac trouble. Her picture shows her progress chart in the nutrition class. Why not make her efforts and progress toward becoming a healthier girl count as much as winning of athletic games by others?

(6) Good teeth or the repair of carious teeth. (7) Correction of physical defects, (tonsils, adenoids, spinal curvature). (8) Regular attendance at meetings of the club. (9) Junior sanitary police duty to the center or some service to the club. In this way the members of the health clubs can contribute their share of points, the total of which will determine the competitive standing of their center. Boys and girls can thus help their playground get a higher standing by becoming healthier themselves and by interesting others to do likewise.

During the coming indoor season, a health club on these lines will be organized at Holstein Park, but with the disadvantage of not being on a competitive basis, because, for the present, health clubs will not be started at the other recreation centers. The children in the gymnasium classes will be weighed and measured, and physical examinations will be arranged for those who desire them. By checking up the enrollment with the reports of school physicians and nurses of the neighboring school it is expected that much useful information will be obtained. A special fund may be secured by one of the health agencies for the employment of a nurse on part time who could attend to all the necessary follow up

The nutrition class at Holstein Park Recreation Center. It is proposed to give credit for improvement in health as well as for success in athletics.

work, and of a special instructor fully qualified to conduct a class in corrective gymnastics and who could also, advise the instructors concerning adjustments that can be made in the program of boys and girls who would be benefitted by this special attention. There will also be opportunities for such an instructor to give helpful suggestions concerning the regular program of work.

Certain objections have been raised to making health activities a part of the work of recreation centers and playgrounds. (1) The objection that the chief purpose of the center is to serve the recreational needs of those who are healthy and physically fit ignores the fact that about one-third of our young people are physically deficient and that this group is entitled to service. Furthermore, the situation seems to demand a physical rating. (2) It is held that recreation centers should not be given a sanitarium atmosphere by permitting children to take their prescribed rest lying in a well ventilated and otherwise unused room. Neither should the centers be commercialized by permitting the distribution (or sale at cost price) of milk to children in need of this additional nourishment between meals. Both of these practices have, however, been introduced into many schools throughout the country without turning them into sanitariums or milk stores, and without lowering the standard of service to normal children. (3) It has also been held that the equipment needed to conduct health activities takes up space which is needed in the centers for purely recreational purposes. This may sometimes be the case, but the necessary adjustments should be worked out so that the service of both agencies to the community need not suffer. This can be done only through the closest cooperation. (4) Another objection is that intensive service to a small group can be given only at the expense of neglecting the large majority. However, it is only through devoting part of our energies to small groups that the new needs of the community as a whole can be discovered and service adjusted accordingly.

The splendid system of all-year-around playgrounds and recreation centers which exists in Chicago offers an unusual opportunity to develop health activities on a competitive basis in all the centers. Whether the playground authorities or a local health agency should initiate this constructive piece of work is yet to be determined. However, it is certain that every community which has one or more summer playgrounds can use them for the health as well as for the recreation of its children. The consistent program demonstrated during the past summer vacation at Holstein Park Playground can be worked out in any playground however small.

Child Health Demonstrations

CITIES in the upper Mississippi valley region which come within the population limits of from 15,000 to 25,000 are eligible for consideration as the site of the first of three child health demonstrations which the special Child Health Committee, which is to administer the Commonwealth Fund appropriation for preventive health work for children in the United States, proposes to locate in different parts of the country. The general purpose of these demonstrations is to assist these cities in safeguarding the health of mothers and promoting the sound, normal development of babies, boys, and girls, with the greatest freedom from disease, in order that these three communities may develop comprehensive plans for the health of their children that may be an inspiration and help to the rest of the country.

The area from which the first city will be chosen includes the states of Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. Important qualifications, besides those of population and location, are that the infant mortality rate shall be approximately 100 per 1,000 live births or greater, and that the community shall show a desire to cooperate in the work and offer a reasonable assurance that those parts of the program which prove to be sound shall be continued by local support.

The organizations which the Commonwealth Fund has asked to join in directing these important demonstrations are the American Child Hygiene Association, the Child Health Organization of America, the National Health Council, and the National Child Health Council.

The work in the community will be in immediate charge of a resident director who will report both to the Committee in charge of the demonstrations and to the representatives of the community. This director is to be assisted by such paid staff of nurses, an educational director, and other necessary assistants as may be necessary, all of whom will as rapidly as possible, if not at once, assume the status of local workers. Careful records are to be kept so as to make it possible to measure the results of the work and compare them with those in other communities where especially active work is being done. The cooperation of private physicians is recognized as of great importance, and the work will be planned to supplement and stimulate their practice rather than to trespass upon it.

The Committee believes that a period of five years should be allowed for the results to prove fairly conclusive. The Child Health Committee maintains headquarters at 532 Seventeenth St., N. W., Washington, D. C. Courtenay Dinwiddie is its executive secretary.

Teaching Health in New York City Schools

Chew Chew and Dog Creamo Painlessly Instill Health Knowledge and Habits

By BERTRAND BROWN, New York City.

THAT pedagogy has its disciplinary functions few persons born in Pilgrim-pioneered America will deny. But as to the places in the schools' curricula where children should be trained to endure a certain amount of mental chastisement "to harden the will," opinions widely differ. There seemed, however, to be unanimity of view recently among some sixty-two principals of as many public schools in New York City that the teaching of certain fundamentals of personal health and hygiene to children in the grades might well go on without any disciplinary by-product.

The circumstance was this. The New York Tuberculosis Association sent questionnaires to the above mentioned school executives asking them to state which method they preferred to have employed by the organization in bringing its health propaganda into the schools, that of a lecturer or that of a clown. Unanimously they spoke for the clown. But two voices called for the lecturer and these asked also for the clown.

The Association has experimented for several years to find some effective means of painlessly instilling certain vital impressions on young minds which, applied and adhered to, would result in more vigorous bodies. The clown's triumph has proved to be the Association's triumph and also the triumph of the health lessons. "Chew-Chew" accomplished more in forty minutes than one can in weeks of class room instruction, was the way one principal summed up the experiment.

"Chew-Chew" is the entertaining educator's clown name. In private life, he is A. J. Schneeman of St. Paul. A knowledge of the basic principles of health and hygiene, a keen understanding of child psychology, skill in magic and drollery, and a wealth of personal magnetism are the tools he carries in his kit of teaching technic.

For boys and girls of grade school age, "Chew-Chew" advocates ten hours of sleep. Or rather, "Chew-Chew" does not advocate the matter at all. Creamo, a small white dog with black ears and shoe button eyes tells the children with his worsted paws that he goes to bed at nine and sleeps until seven with windows wide open. From his audience, "Chew-Chew calls to his aid two small boys, one robust and healthy, the other pale and wan. "What do you drink for breakfast?" he asks the hale lad. "Milk" is the ready reply. Creamo nods his bushy head in approval and his master smiles.

"And what do *you* drink for breakfast?" Fidgeting under the rising inflection of the "*you*," the frail boy ashens and answers "coffee." "Chew-Chew" and Creamo drop their countenances in pity.

Then, to the astonishment of the audience assembled and with the assistance of the stronger boy on stage, "Chew-Chew" pumps a quantity of coffee from the elbow of the weaker lad. The latter is given a glass of milk, and as he drinks it—lo! and behold!—the muscles in his arm swell conspicuously, showing that "milk makes muscle."

The smile, the wig, and the make-up which go to transforming A. J. Schneeman of St. Paul into "Chew-Chew" the health advocate of the New York Tuberculosis Association.

The result expected to follow such a first hand demonstration is a unanimous vote on the part of the youthful audience thenceforth to abstain from coffee drinking. This result is invariably obtained to the glee of Creamo, and always there follows a unanimous pledge to drink more milk. Trick after trick follows with apples, oranges, potatoes, and eggs, the purpose of which is to impress these foodstuffs lovingly on the memory of the youthful audience.

Blotters shaped like a milk bottle and containing a picture of "Chew-Chew" and Creamo have been published. These souvenirs bear this message from the clown to boys and girls:

Dear Boys and Girls:

I want you to have my "milk picture" to remind you of the simple rules to follow for good health:

Fresh air	All the time.
Wholesome food	Especially fresh fruit and vegetables eat slowly.
Sleep	Plenty of it windows open.
Teeth	Brush them twice a day
Baths	At least two a week.
Water	Several glasses a day.

Remember what "Creamo" taught you about drinking three glasses of milk a day.

I hope you are getting on well with your studies.

It always pleases me to get letters from my little friends.

Yours for Good Health,

CHEW-CHEW

"For the benefit of the grown-up element," writes the *New York Evening Sun*, "let it be known that Chew-Chew" is the only power that will move modern childhood willingly toward the bathtub. He is moral persuasion personified."

There is nothing patronizing in the attitude of A. J. Schneeman to his youthful audiences. There isn't an "ought to" or "must" in his entire vocabulary. Keenly conscious of the importance of his crusade to build up the health of children and create resistance to germs at the age when a child is most susceptible to them, in "Chew-Chew's vocabulary there is no mention of the dreaded white plague. Instead, there is much encouragement in the drinking of milk and the eating of fruit and vegetables. And every time "Chew-Chew" craftily gathers up his effects and says: "Well, I guess it's time to be going,' a vociferous "No!" from his audience proves how painless is his pedagogy.

That the clown, with his flaming thatch of hair, his funny face, and his astonishing tricks makes a vivid impression on his youthful spectators, is evidenced by their letters—which

Whether he takes eggs from healthy boys' elbows or turns coffee into milk under the alert gaze of wondering eyes, "Chew-Chew" has no trouble in holding the attention of his audiences.

are the most valued part of his morning mail.

In the following poem one grade school pupil attests to the effectiveness of "Chew-Chew's" teaching:

Chew-Chew says to go to bed
At nine o'clock at night
So that in the morning
We will be fresh and bright.

A glass of milk for every meal
Will make us strong and gay,
A soft boiled egg, a little fruit
And lots of outdoor play.

At morning for our breakfasts
Our food we well should chew
And not drink tea or coffee—
Oh, that would never do!

And having given this advice
Our health clown turns away
To give his thirsty pup some milk,
But he'll come back some day.

The New York Tuberculosis Association concentrates much of its educational work among the children of the metropolis. Every popular and modern method is utilized—attractively printed colored literature, "movie" films, the out-of-the-way reaching Healthmobile, illustrated lectures, miniature exhibits, nutrition classes, and visitations of open-air schools. No plan of pedagogy, however, has proved more effective than "Chew-Chew's" health performances. And who will say that it is not because his lessons are sugar-coated with event after event of long remembered jollity? It is reported that "Chew-Chew's" precepts are to be taught universally through motion pictures. This should be welcome news to parents and teachers who have not learned his art of painless health pedagogy and will delight juvenile movie fans.

New York State School Health Service

Knowledge of Personal Hygiene Is Right of Every School Child

By FLORENCE A. SHERMAN, M.D., State Department of Education, State Assistant Medical Inspector Schools, Albany, N. Y.

In connection with the school health program in New York State three points might well be emphasized: (1) A brief history of the state work; (2) results achieved in the past six years since the work has been actively functioning; (3) the scope of future work. In passing I cannot refrain from mentioning Dr. S. Josephine Baker who established one of the first good systems of medical school inspection. Dr. Baker's vision and ability in formulating a scheme of health work has made the New York City system one which has been followed by many municipalities. Health work in the schools of the State was made mandatory in 1913 but not until 1915 did a director assume office. For two years he worked alone. In 1917 a state supervising nurse was appointed, but not until 1918 was a substantially additional force appointed so that today our department consists of a director, two assistants (man and woman), supervising nurse, two mental deficiency experts, direct special classes, nutrition expert, director oral hygiene, instructor of hygiene, and three stenographers.

The State of New York is an enormous field to cover and so far only the surface has been scratched. Our territory includes all the state except New York City, Rochester, and Buffalo. Seven hundred thousand children, 3,500 teachers, 1,400 medical inspectors, 250 school nurses come directly under our supervision. It will be seen at a glance that our duties are to a large extent supervisory—only occasionally can we do the intensive group work because of still unsufficient force for the territory to be covered. Surveys have been made and there has been an endeavor to use the State staff when most needed. We are lecturing in normal schools, at teachers conferences, parent teachers associations, granges, and other organizations in order to stimulate interest and make people better acquainted with what our health program stands for.

A large amount of work has been done and results obtained in spite of many handicaps.

The figures cited cover the period from 1915 to 1921. Children registered in the cities and villages numbered 1,920,230; 1,343,289 examinations were given; defects found were 102,657; number of defects 401,689.

*Read at the annual meeting of the New York State Women Medical Association, Albany, N. Y., April 17, 1922.

Children registered in the rural schools were 1,494,104; examinations 1,195,420; defects found 107,505; defects corrected 256,302. The per cent of pupils examined in the rural schools was greater in proportion to the registration than in the cities and villages—69 in the cities and 80 in the rural districts, but the per cent of correction was much lower, 30 in cities and 23 in rural. This was due to the difficulties of obtaining dental and medical advice, we believe, rather than to the indifference of parents and lack of interest on the part of the school doctor, nurse, and family physician.

The actual corrective measures attained, although very important is not the most important part of this work. The fact that attention has been focussed upon the health of the child in the home and in the school is still more important and far reaching, our whole school health program today being educational. It is impossible to legislate measures to compel parents to care for their children in these matters.

While education is the greatest safeguard, much good work has been done along corrective lines as well as bringing about the health viewpoint in the home and school, that of keeping children well, having them enter school physically fit, establishing them in normal health habits of sleep, bathing, food, mouth hygiene, water drinking, toilet habits, rest, play, posture, and breathing without which no boy or girl can maintain health control. This is the work of the parent, the doctor, and the teacher of today. The coming doctor will be employed to keep people well, not to cure them after they become sick. Periodic physical examinations for children and adults is fast coming to be recognized as an economic measure in the home and in the community. This is as it should be. The strange thing is that this common sense viewpoint has not prevailed long since.

The scope of future work is to emphasize preventive measures as well as to aid materially in making corrective measures possible to more children. We are establishing hospital units throughout the state in the various counties whereby rural school children whose parents are financially handicapped can receive expert attention for a minimum rate. Over ninety hospitals have already affiliated. We are urging parents to give prompt attention to the notification of physical defects found by the school doctor as protective and preventive measures in the future welfare of the child. We are urging closer cooperation between the family physician and school doctor; we are urging the former to stimulate interest in the homes into which he goes to early and periodic attention to the health of their children. We are putting into use this coming year a new health syllabus which will provide for definite health teaching in every grade, beginning with the kindergarten. Health efforts will receive as much rating on the school reports as any other subject. In this way we believe we shall get closer home interest and cooperation. We are urging our medical inspectors, nurses, and teachers to greater interest and care in school health work. We are urging a Department of Health Education in our normal schools directed by women physicians; the consolidation of rural schools, better buildings and equipment, more careful sanitary supervision in an endeavor to make the schools places where boys and girls go to improve in health. In fact, we are endeavoring to build up a constructive health program looking forward to the time when the child will enter school physically fit, his corrective needs cared for, his health habits formed, his bill of health clean.

Constructive Health Program

No one can work with children without realizing his obligation and the seriousness of the work. Since this work started, the attitude of people regarding it has radically changed. They are now asking for school health service. The vital need is the educational side of it. "Health First" must become our slogan—keeping well—not getting well. Teaching boys and girls health laws, how to live wholesomely, should be a large part of the work of the doctor and teacher of today.

Just a word on the subject of hygiene, personal, general, and special. Hygiene should be the basic subject from which all other subjects should radiate. Many public school boys and girls of today are being cheated out of their birthright. When we realize the large percentage of children who leave school at 14, after the 5th grade is passed, we have failed lamentably in our obligations to them in connection with health education. The great obligation of arranging practical courses in hygiene giving children at least a good working knowledge of their bodies, how to care for and keep them in health after they go out into the world to work, is most apparent.

In summary, every boy and girl before leaving school has the right to knowledge concerning the following: (1) The structure, function, hygiene, uses and care of their bodies; (2) the meaning of marriage, homemaking, the responsibility of parenthood, and the duty of right living; (3) knowledge of the most prevalent contagious diseases; the many means of communication and how to protect themselves against these; (4) knowledge of the normal phenomenon of adolescence and of a healthy body, of clean thinking, and good companionship.

In conclusion, I believe school health work is particularly adapted to general physicians by reason of their natural fitness, careful attention to details, and the close relationship and response which they are especially able to get with and from children. Strange as it may seem, there are not ten women physicians doing this work in the state.

In our private work some of us have not always recognized the importance of emphasizing health habits, I feel, but in the future the health viewpoint is the one which must be taught. I do not believe we can put over our message or fulfill our highest obligation until we do this. We should endeavor also as far as possible to embody and radiate health personally. We should practice what we preach; the doctor should be a health teacher —the health director of those he endeavors to serve.

It is strange that preventive measures were not more emphasized formerly, even in our medical schools The day is fast coming when prevention will be emphasized and the young doctor will be imbued with the health viewpoint. Some of us have waited half our lives before acquiring this viewpoint but to those of us who have attained this new vision of our profession it has opened a new world.

A set of rules with instructions for avoiding almost every variety of accident in the feature of the "safety" course which has been installed as a regular part of the curriculum of St. Louis public schools. The work also includes committees of children who formulate their own plans for adding to the program and details pupils to guard particularly dangerous street crossings.

The success of this plan was demonstrated when, after being put in operation in 1918, it was abandoned in 1919, and as a result the fatalities among children of school age jumped from 36 to 49. The children are taught that the safety of others is also their concern and are placed at crossings to help smaller children across.

Children's Play in Hospitals

TO keep the mind of the adult patient occupied while in the hospital has been proved to hasten recovery, and in like manner the amusement of children who are forced to spend a greater or less time within hospital walls has come to be a profession. The children's ward of the Massachusetts General Hospital, Boston, exemplifies one of the notable successes of this work. Under the direction of a woman trained in kindergarten and Montessori methods and in story telling in libraries and settlements, these children from the tiny babies to the fourteen and fifteen year olds are given recreations suitable to their mentality and interests.

Isabelle L. Whittier is the "play lady" in this hospital. Even small babies suffer ennui when left to convalesce for hours in their cribs, Miss Whittier believes. These she stimulates by tying to their beds six colored worsted balls which swing back and forth. Besides amusing the child they give him his first lesson in concentration. Children of two years are delighted with cylindrical wooden insets, three sets of which can be fitted into holes in wooden bars. This taxes the little patients' ingenuity and keeps them interested for hours.

Children four, five and six years old like to play memory games. From a tiny chest of drawers the blindfolded child draws out a piece of linen, cotton, silk, or velvet, feels it and tells the name of the material. By means of the Montessori dressing frames the children are taught how to dress themselves.

Children from eight to fourteen are interested in a variety of things and their amusements are therefore of greater scope; they are also more difficult to entertain for individual tastes begin to assert themselves. Nature study, on the whole, is a common interest. Bird charts help them to identify birds they have seen.

Some of the children enjoy handicraft and make from old cigar boxes attractive lacquered work boxes.

Parties are as fascinating to the bed-ridden child as to the active youngster able to run about. At these parties Miss Whittier brings out her magic chair, a dainty gilded thing with a music box in the seat. The legend is that when a good child sits on the fairy chair a tune plays. One by one the children wrapped in their blankets are placed on the chair. There is a slight pause before the music starts and each child perforce recalls any misdeeds during the month. The look of suspense is followed by a gasp of joy when the music starts.

Montessori cylindrical wooden insets enthrall the attention of the two-year-old who often spends hours fitting the pieces into the holes.

The recreational work for hospital children is still undeveloped. Many games have to be discarded as being too noisy. Kindergarten methods require too much supervision to be of great use in the opinion of Miss Whittier, but the Montessori methods have proved successful, for the reason that the children can teach themselves. There is still a lack of occupations for older boys.

Of the value of Miss Whittier's work from a medical standpoint, Fritz B. Talbot, Chief of the Children's Medical Service, Massachusetts General Hospital, says: "Miss Whittier has filled the lacking gap in our ward and the results have been beyond my expectations. * * * Miss Whittier's cooperation in amusing and educating the children has been of more than academic and humanitarian interest because it has been of real therapeutic value and has hastened the cure of the child. I feel that there is a place for such work as Miss Whittier carries out in all hospital wards for children."

An English Nursery Hotel

A nursery hotel for children whose parents are facing a personal or domestic crisis is maintained at Oxfordshire, England, reports *The Lancet.* The house, located on a high sunny hill, is surrounded by two acres of garden. Rigid institutional lines have given way to a homelike atmosphere in the large airy rooms.

The physical well being of the children is adequately protected. A med-

Silk or velvet, which? is an exciting game for little patients. This educates their sense of touch as well as giving them the thrill of mystery.

Even small babies can have [illegible] Colored worsted balls [illegible] give them their first lesson in concentration.

ical officer attached to the hotel pays fortnightly routine visits. Children convalescent from infectious diseases are denied admittance while all entrants are isolated for a day or two

Prevention of Deformities in Children

By JACOB SOBEL, M.D., Assistant Director, Bureau of Child Hygiene, New York Department of Health, New York City.

PREVENTION of deformities is to orthopedic surgery what prevention of disease is to public medicine and health. In either case it is better to be careful than sorry. The prevention of crippled children should begin before birth by proper care, diet, and hygiene of the mother, and by the avoidance of accidents and injuries especially to the abdominal wall. Injuries to the child at birth which occur generally in the cases of long, difficult, instrumental, and complicated labor, can often be prevented by a careful selection of a properly trained and qualified attendant. These injuries may affect the brain, spinal cord, nerves, muscles, bones, joints, and other parts of the child, and cause weakness and paralysis of the extremities, with various kinds of deformities. Some of these injuries cause mental deficiency, spastic paralysis, or permanent deformities. The after-results of birth accidents vary in kind and degree from the very mild to the most serious, incapacitating, and, sometimes, hopeless.

Women who engage midwives should insist upon medical advice and care in the event of abnormal labor. Birth paralysis, not caused by brain or spinal injury or disease, in other words that is due to pressure upon or stretching of nerves, often responds promptly to efficient treatment. All injuries at birth call for immediate care, as delay may result in permanent incapacity and disfigurement.

Rickets, which so often results in deformities such as knock knees or bow legs, or other curvature of the long bones or spine may be prevented by suitable and sufficient diet, proper hygiene and surroundings, fresh air and sunlight, and the use of cod liver oil. This disease is more common among the Italians and the Negroes.

Toward the end of the first year children require "careful watching." They are always on the move at this age, and falling out of bed, the carriage or high chair may be followed by serious injury or deformity.

Then we have the congenital deformities, congenital dislocation of the hips — one or both sides —congenital club feet and hands, webbed fingers or toes, supernumary fingers or toes, short arms or limbs, amputation (intrauterine) of fingers and toes, and many others. Some of these are curable by early operation.

After the child begins to walk, any evidence of sudden or persistent pain, limp, stiffness, limitation of motion in the limbs or spine, or muscle spasm should be looked upon with suspicion. More attention should be given by parents and physicians to complaints of "growing pains," for many sins of omission have been committed in their name. Tuberculous disease of the hip, knee, or other joints, and of the spine often dates its onset from an apparently insignificant fall or blow, which was sufficient to "light up" a dormant tuberculous process, particularly in children who were malnourished.

The prevention of deformities resulting from infantile paralysis is largely a matter of preventing the disease itself, by quarantine and isolation of those affected, avoidance of crowds, and the observance of personal and community cleanliness and hygiene during the prevalence of the disease. Proper care of the disease in the acute stage by rest, position, and support; and the institution of massage, exercise, and mechanical support at the proper time after the acute stage will help to prevent or minimize some of the deformities which are likely to result. The after effects of this disease often depend upon the severity and dosage of the infection and the amount of involvement in the spinal cord. This latter is unfortunately often beyond our control.

Deformities following disease or injuries to the brain and spinal cord are in proportion to the areas involved and are usually permanent. Occasionally mechanical or operative correction is possible. Prevention here is practically the prevention of the disease itself.

Pain or swelling of any joint, following or during the course of the contagious or respiratory diseases of childhood is often the forerunner of serious disease and deformity and requires prompt medical treatment. Enlarged tonsils, decayed teeth, and other foci of infection often cause joint involvement with deformity, while the social diseases claim their share of serious joint and bone diseases. Foci of infection should be removed, and personal and community control of social disease will prevent many from becoming crippled.

In early childhood, proper posture, carriage, and breathing exercises, avoidance of awkward positions, of slouching walks, and of carrying heavy books or packages too long on one side of the body will often prevent round or stoop shoulders and spinal curvature.

Physical training and calisthenics are excellent preventives. Most children are perpetual motion machines and are always ready for play. Properly regulated games—swimming, and athletic sports are beneficial while "horse play" not infrequently causes accidents and disastrous results.

Avoidance of undue exposure, dry feet, proper diet, removal of decayed teeth, and of abnormal or diseased tonsils, and the observance of oral hygiene will prevent rheumatic joint involvements. General prevention measures require that all wounds, cuts, bruises, and burns be given immediate attention to prevent infection. Existing infected wounds should be incised and drained. Fractures should be set immediately and dislocations reduced.

Another phase of prevention consists in early treatment of deformities to limit their extension. The earlier in life a deformity is detected and corrected, either by mechanical or operative means, the better the chance of ultimate success. This is particularly true of congenital dislocation of the hip in which the age of selection is between three and six years, and of congenital club feet, in which the bloodless operation is most successful between one to three years of age.

When we realize that many of the existing deformities of children could have been prevented or certainly lessened in severity, an appeal for extension of preventive orthopedics is worth while.

Two recent publications of the Department of the Interior, Bureau of Education, dealing with problems of rural schools are "Home Economics in Rural Schools," Home Economics Circular No. 13, and "Modern Equipment for One-Teacher Schools," Rural School Leaflet No. 3.

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Shrine Children's Hospital at St. Louis

AFTER thorough studies of similar institutions, and consultation with Dr. Nathaniel Allison, President of the American Orthopedic Association, the architect, William B. Ittner, has conceived and developed plans for the Shrine Crippled Childrens' Hospital in St. Louis which contemplate an institution of social service and orthopedic research that will be the most complete of its kind in the country.

The site selected for the Hospital has a frontage of 380 feet on Kingshighway, and an average depth of 336 feet. It lies south of the Washington University Medical School—one of the buildings of the Barnes Hospital group overlooking Forest Park. A subterranean tunnel will connect the hospital with a central power plant of the Barnes group.

The new hospital will be made up of a three story administration building placed diagonally facing the corner; and two ward buildings, each two stories high, facing west and south respectively will connect closely with this central unit. This arrangement affords desirable light and air for the ward buildings and makes an interesting architectural group. While the Shrine Hospital will differ in style from the Barnes group, care was taken that the new building should strike a harmonious note with the old.

The first floor of the administration building contains an admitting ward reached from the main approach, and consists of five rooms to receive one patient each, an examination room, a reception room, a room for the head nurse, and the necessary utility rooms. This floor also contains the main administration offices, being made up of the business office, superintendent's and secretary's offices, and a reception room for visitors. In the connecting wings between the administration and ward buildings are two elevators and stairways.

The first and second floors of each ward building contain the main wards to accommodate twenty beds respectively, making a total of 80 ward beds. Each ward is divided by glass partitions into three cubicals. Dining rooms and sun rooms adjoin each main ward. Across the corridor from each sun room are two wards for individual cases, and across from each dining room is a diet kitchen. The necessary utility rooms, toilets, baths, and surgical dressing rooms correlate with these wards.

The second floor of the administration building contains the clinical, x-ray, and photo gallery with the essential store and filing rooms, the rooms of the staff, consisting of a resident physician, two resident assistants, and two interns.

The third floor consists of the operating suite which includes three operating rooms, one being equipped with a spectators' amphitheatre. Along with these three rooms are the necessary rooms for anesthetic, sterilizing, utility, surgeons, and nurses.

The ground floor of the administration building contains the main kitchen and the dining room for the staff and help. The ground floors of the ward buildings contain rooms for soiled and clean linen, sewing, cutting, mattress sterilizing, patients' clothes, morgue, drugs, massage, carpenter shop, orthopedic shop, upholster shop, barber shop, and general storage.

The new hospital will be built and equipped at an approximate cost of $425,000.00.

That the day of the blind baby is passing, banishing with it the most prolific cause of blindness in children, ophthamia neonatorum, is indicated in a summary of state laws and rulings relating to the prevention of blindness from babies' sore eyes, Publication No. 9, recently issued at headquarters of the National Committee For the Prevention of Blindness in the Russell Sage Foundation Building, New York.

The summary shows that in 44 states the reporting of babies' sore eyes to the local health officer or to a physician is now compulsory. The only states in which such legislation has not yet been enacted are Arizona, Nevada, Texas, and Wyoming. The use of a prophylactic, "drops," in the eyes of infants at birth is required by law of physicians and midwives in 24 states, by physicians only in two states, and by midwives and attendants only in two states. Free prophylactic outfits are distributed in 28 states and popular educational leaflets on the prevention of infantile blindness are distributed by state departments of health in 35 states. In only 17 states, however, are births reported early enough to be of assistance in prevention of blindness work.

The use of anti-diphtheritic serum in massive doses is receiving considerable attention in France and Italy reports M. P. Lereboullet in *Paris Médicale*.

The Shrine Crippled Children's Hospital at St. Louis is one of five being erected by the order in various large cities in the United States and Canada.

Cantilever Stores

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Austin Carl H Mueller
Baltimore—325 No. Charles St.
Battle Creek Bahlman's Bootery
Bay City—D. Bendall Co
Birmingham—219 North 19th St.
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Bridgeport—W. K. Mollan.
Brooklyn—414 Fulton St.
Buffalo—639 Main St
Butte—Hubert Shoe Co.
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Cedar Rapids—The Killian Co.
Charleston J F. Condon & Sons
Charlotte—221 Piedmont Bldg.
Chicago—4750 Sheridan Rd., Room 214; 30 E Randolph St., Room 502
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Cleveland—Graner-Powers, 1274 Euclid
Columbia, S. C.—Watson Shoe Co.
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Dallas—Leon Kahn Shoe Co.
Davenport—R. M. Neustadt & Sons
Dayton—The Rike-Kumler Co.
Denver—224 Foster Bldg.
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Galveston—Fellman's
Grand Rapids—Herpolsheimer Co.
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Hartford—86 Pratt St.
Houston—Clayton's, 803 Main St.
Huntington, W. Va.—McMahon-Diehl Co.
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Jersey City—Bennett's, 411 Central Ave.
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Lancaster, Pa.—Frey's 3 E King St.
Lansing—F. N. Arbaugh Co
Lawrence, Mass.—G. H. Woodman.
Lexington, Ky Denton, Ross, Todd Co.
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New Haven—153 Court St (2d floor)
New Orleans—109 Baronne St., Rm 200
New Rochelle—Ware's
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Norfolk—Ames & Brownley
Oakland—205 Henshaw Bldg.
Omaha—1708 Howard St.
Passaic—Kroll's, 37 Lexington Ave
Pawtucket—Evans & Young
Peoria—Lehman Bldg (Room 203).
Philadelphia—1300 Walnut St
Pittsburgh—The Rosenbaum Co.
Pittsfield—Fahey's, 234 North St.
Plainfield—M. C. Van Arsdale
Portland, Me.—Palmer Shoe Co.
Poughkeepsie—Louis Schonberger
Providence—The Boston Store
Richmond, Va.—Seymour Sycle.
Rochester—148 East Ave
Rock Island—Boston Shoe Co.
Saginaw—Goeschel-Brater Co.
St. Louis—516 Arcade Bldg (Opp. P O.)
St. Paul—43 E 5th St (Frederic Hotel)
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San Antonio—Guarantee Shoe Co.
Santa Barbara—Smith's Bootery
San Diego—The Marston Co.
San Francisco—Phelan Bldg (Arcade)
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Seattle—Baxter & Baxter
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Spokane—The Crescent
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Springfield, Mass.—Forbes & Wallace
Stamford—L. Speike & Son
Syracuse—136 S. Salina St.
Tacoma—255 S. 11th St (Fidelity Bldg.)
Terre Haute—Otto C. Hornung
Toledo—LaSalle & Koch Co.
Topeka—The Pelletier Co.
Trenton—H. M. Voorhees & Bro
Tulsa—Lyons' Shoe Store
Utica—Room 104 Foster Bldg
Waco—Davis Smith Bootetie
Waltham—Rufus Warren & Son
Washington—1319 F Street
Waterbury—Reid & Hughes Co
Wheeling—Geo. R. Taylor Co
Wilkes-Barre—M. F. Murray
Worcester—J. C. MacInnes Co
Yakima—Kohls Shoe Co.
Yonkers—Louis Klein, 22 Main St
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Nature, in her wisdom, designed your foot arch to flex when you walk. Why restrain it in shoes that are rigid and without natural lines? "The foot is like a cantilever spring," wrote a noted doctor. "The Cantilever is the most comfortable shoe I have ever worn," said a trained nurse; and another woman said, "In Cantilever Shoes I feel as though I were flying."

It is because of the *flexible shank* and *natural lines* of the Cantilever Shoe that you will derive such comfort from it. And because of its graceful appearance and its harmony with this Spring's shoe styles you will see it worn wherever daytime costumes are worn. Fine workmanship, splendid materials and reasonable prices add to make the Cantilever desirable.

The graceful carriage and youthful walk of the Cantilever Woman are often admired. Her feet are free. She walks naturally, with a minimum of effort. Flexing with every step, Cantilever Shoes make her feel as though she wore the wings of Mercury.

Though you may not be conscious of it, there are few things that spoil a good disposition quicker than shoes that nag you. Nerve strain, leading to backache, headache, and even to pains like those of rheumatism, may be caused by high heels and by shoes that bind and restrict the feet. Many writers on health and beauty subjects are now pointing out the importance of a woman's shoes in respect to her health, happiness, and personal attractiveness.

You were given two marvelously constructed feet. At the nearest Cantilever Store, try on a pair of shoes suited to their needs. Keep your feet well and spare yourself the misery that has come to so many women. If wrongly designed shoes have already begun to injure your feet, a change to Cantilevers will help them. Weakened arches will be strengthened by proper exercise; your improved circulation will make you feel better and look better.

If none of the listed dealers is near you, write the manufacturers, Morse & Burt Co., Carlton Avenue, Brooklyn, N. Y., for a nearby dealer's address and for the Cantilever Booklet, which tells some things you will be glad to know about your feet.

Cantilever Shoe

Endorsed by Women's Colleges, Women's Clubs, Public Health [illegible] Directors of Physical Education, Editors, State [illegible]

Good Water Polluted by Bad Handling

Certified water of satisfactory quality and safety may be so handled in its delivery and storage aboard a vessel as to render it unfit and unsafe for consumption, says the U. S. Public Health Service in a recent report. For instance, the methods used by passenger vessels operating on the Ohio and Mississippi Rivers in the summer of 1921 frequently result in contamination of the water. On the Great Lakes, on the other hand, the methods used were generally satisfactory and the results of the bacteriological analyses showed much lower counts. By law, drinking water on vessels engaged in interstate traffic must be obtained from certified sources ashore or must be purified by treatment aboard "by an approved method."

Facilities for conveying the drinking water aboard vessels along the rivers have not always been unsatisfactory. At Louisville, Cincinnati, Evansville, Huntington, Pittsburgh and other river ports, certified water is available but in 1921 was carted from the nearest hydrant in kegs or barrels. The report recommends that hydrants to public water supplies be placed on the piers at places convenient for delivery through hose. The hose so used should be carefully protected from contamination from the river water and other sources and should be used for no other purpose. Where the river level is subject to marked changes, a water pipe should be run down the incline of the landing. City hydrants, properly protected, should be placed on it at about each fifteen feet of vertical rise in the landing. Preliminary steps to do this are now being taken at all five of the cities named above.

Student Health Service and Public Health

There is no such detachment between the student health service and the student body as exists between the average health department and the community served. Whether he is interested to do so or not, the student must undergo the routine preliminary physical inventory and his subsequent assignments in hygiene give an added value to the results of his physical examination. Certification in health becomes a matter of pride, perhaps a necessity and corrective measures a prescribed duty.

The sympathetic attitude of mind is one contribution to public health which Dr. J. Howard Beard emphasizes in a recent issue of the *Journal* of the American Medical Association as an important contribution of student health services to public health. Another is the public health insurance involved in early discovery and correction of incipient disorders perhaps unsuspected by the people affected. The successful application of corrective measures is well calculated to produce a higher appreciation of the relation of physical and mental adaptation to successful careers and to efficiency in occupation.

The findings of the physical examinations among students are of the greatest value in public health, for they are always subject to "follow-up" work. Dr. Beard suggests also, in the interest of analytical studies, that a "follow-back" should be adopted as well so that generalizations may be made on the correlated findings of dentist, aurist, oculist, laryngologist, clinician, and surgeon which can later be applied to discerning the cause of the so-called degenerative diseases and the influence of occupation and habits in relation to them. As the influence of such services permeate the masses, sanitary advancement will be supported by a dynamic public opinion, and departments of health will no longer need to devote such a disproportionate amount of time, energy, and money toward health instruction of the masses.

Nursing New York City's Poor*

IN THE heart of New York's lower east side, in that conglomerate melting pot, a humane, health-promoting agency is conducted which Prof. William Welsh of Johns Hopkins has called one of the real American contributions to the progress of the world. This is the Visiting Nurse Service of the Henry Street Settlement, started more than thirty years ago by Miss Lillian D. Wald and her colleague, Miss Mary M. Brewster, with headquarters on the top story of a tenement house and with no greater staff than their own two pair of hands.

Today, in addition to the headquarters at the Henry Street Settlement, the Visiting Nurse Service, under the generalship of Miss Wald, and the direct command of Miss Annie W. Goodrich, maintains a public health service through which 230 trained nurses in twenty-two centers bring comfort, healing and the message of healthful living to the homes of Manhattan, Richmond and the Bronx. The work begun from the top floor of the tenement has been developed into the many highly specialized branches of public nursing now covering the United States.

To illustrate the inclusiveness of all races, creeds, colors and classes ministered to by the Visiting Nurse Service, Miss Wald tells the story of a

*By Rose Rossner in New York Times.

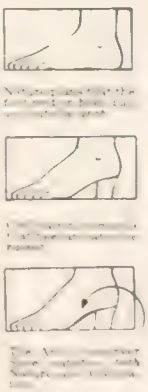
Practical demonstrations of how to bathe a baby, how to prepare the food, and other essentials of infant and child care are daily given by the 250 nurses who, under the supervision of the Henry Street Settlement nursing service, care for hundreds of patients a year in the crowded sections of New York City.

A New Idea in Shoes that is 2000 years old

IN the days of old Rome the people wore sandals, designed primarily to support the foot as Nature requires. The sandal afforded a foot-length support, just like going "bare-footed." There is no record of foot weakness or discomfort in those early days.

But Civilization, in its eagerness to secure more stylish apparel, adopted the heel. This marked the end of the natural foot-length support. The foot arch was allowed to sag, subject to a constant strain. Today ninety percent of all women suffer with their feet largely be cause the arch is not properly supported as Nature planned.

The Arch Preserver Shoe—a new idea in shoes that is 2,000 years old—has revived the sandal comfort and healthfulness. Its concealed, built-in arch bridge gives the foot the same support as when walking "barefooted"—keeps the arch from sagging while the heel is raised from the ground in the smartest shoes that Fashion knows.

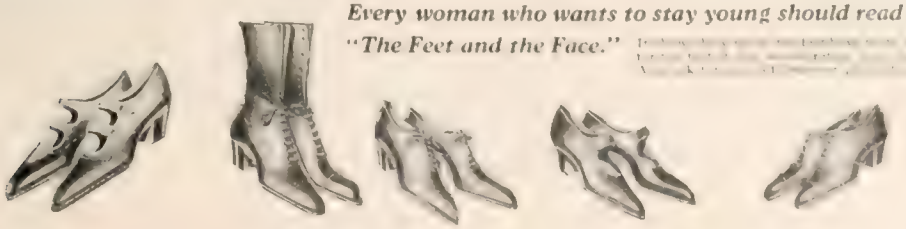


ARCH PRESERVER SHOE

KEEPS THE FOOT WELL

THE ARCH PRESERVER SHOE

Every woman who wants to stay young should read this booklet, "The Feet and the Face."



The Selby Shoe Co. 47 [illegible] St.
Portsmouth, Ohio

Nurses of the Henry Street Settlement Visiting Nurse Service round up their patients and take them to the Red Cross health center—with which they co-operate in the community—where babies are weighed, proper diets demonstrated and other preventive as well as curative measures explained to the eager mothers and children. The Henry Street nurses cover an immense area in their daily visits through the three largest boroughs of New York.

French major who came to inspect the centers. When asked which of the patients he would like to visit in their homes with the nurses, he requested to see the Spanish-speaking Turks. Upon looking up the records it was found that two such families were being treated for influenza—so the major had his wish.

So far-reaching a city influence has this service become that it has been found necessary to acquire a centralized headquarters. A large building, the gift of Mrs. Jacob H. Schiff in memory of her husband, is being erected at Park Avenue and Fortieth Street for this purpose. It is for the carrying on of these enlarged facilities that a plea for contributions amounting to $1,000,000 has been sent out by the committee in charge.

In her book, "The House on Henry Street," Miss Wald has described the beginning and struggles of this institution:

A sick woman in a squalid tenement so wretched and so pitiful that in all the years since I have not seen anything more appealing, determined me, within half an hour, to live on the east side, after I had spent two years in a New York training school for nurses.

The lower east side then reflected the popular indifference—it almost seemed contempt—for the living conditions of a huge population. And the possibility of improvement seemed, when my inexperience was started into thought, the more remote because of the dumb acceptance of these conditions by the east side.

Remembering the families who came to visit patients in the wards, I outlined a course of instruction in home nursing adapted to their needs, and gave it in an old building in Henry Street, then used as a technical school and now part of the settlement.

From the school-room where I had been giving a lesson in bed-making, a little girl led me one drizzling March morning. She had told me of her sick mother, and gathering from her incoherent account that a child had been born, I caught up the paraphernalia of the bed-making lesson and carried it with me.

All the maladjustments of our social and economic relations seemed epitomized in this brief journey and what was found at the end of it. The family to which the child led me was neither criminal nor vicious. Although the husband was a cripple, one of those who stand on the street corners exhibiting deformities to enlist compassion, and masking the begging of alms by the pretense of selling; although the family of seven shared their two rooms with boarders, and although the sick woman lay on a wretched, unclean bed, soiled with a hemorrhage two days old, they were not degraded human beings, judged by any measure of moral values.

In fact, it was very plain that they were sensitive to their condition, and when at the end of my ministrations they kissed my hands (those who have undergone similar experience will, I am sure, understand), it would have been some solace if by any conviction of the moral unworthiness of the family I could have defended myself as a part of society which permitted such conditions to exist. Indeed, my subsequent acquaintance with them, revealed the fact that, miserable as their state was, they were not without ideals for the family life and for society, of which they were so unloved and unlovely a part.

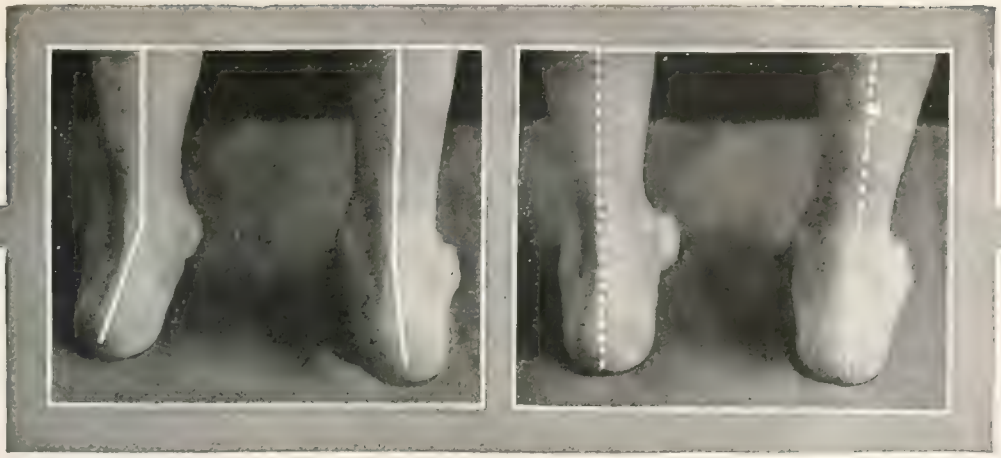
That morning's experience was a baptism of fire. Deserted were the laboratory and the academic work of the college. I never returned to them. On my way from the sick-room to my comfortable student quarters my mind was intent upon my own responsibility. To my inexperience it seemed certain that conditions such as these were allowed because people did not know, and for me there was a challenge to know and to tell. When early morning found me still awake, my naïve conviction remained that if people knew things—and "things" meant everything implied in the condition of this family—such horrors would cease to exist, and I rejoiced that I had had a training in the care of the sick that in itself would give me an organic relationship to the neighborhood in which this awakening had come. Afterward, when I sought guidance, I found that in New York the visiting (or district) nurse was accessible only through sectarian organizations or the free dispensary.

The established system of private nursing; that the nurse should be as ready to respond to calls from the people themselves as to calls from physicians; that she should accept calls from all physicians, and with no more red tape or formality than if she were to remain with one patient continuously.

We decided that fees should be charged when people could pay. Our plan, we reasoned, was analogous to the custom of "private" hospitals, which give free treatment or charge according to the resources of the ward patients. Both private hospitals and visiting nursing are thereby lifted out of "charity" as comprehended by the people.

The public which has no need of our service—those wealthy men and women who by contributing large sums and small can make the further growth of our work so much easier—has so long regarded the visiting nurse service a lower east side activity that it is a problem how to make them realize the extent of our work, said Miss Wald. Statistics show that in the Henry Street center the Visiting Nurse Service takes care of a population of 216,743, equal to the population of Akron, Ohio, but the Bronx centers take care of a population equal to that of Boston, 748,060; the Melrose and Morningside centres care for a population which exceeds that of Washington, 523,000; the Chelsea, Greenwich and Hamilton centres combined minister to a population that almost equals Kansas City, 312,066; the Kips Bay, Longacre, Tremont and Union centers combined operate in an area double that of New Haven; the population of the Morris Avenue and Stuyvesant centers exceeds that of Atlanta, Ga., 213,340; the Seventy-ninth Street center takes care of a population almost as large as that of Portland, Ore., 271,741, and the Staten Island center service protects a population equal to that of Albany.

Last year 38,693 visits made to 10,257 patients in moderate circum-



Weak Arch and Flatfoot —

that need mechanical correction are very prevalent and frequently are associated with painful heel, callouses on sole, fatigue, nervousness, neurasthenia, physical exhaustion and rheumatic tendencies. Heavy people and those who are constantly on their feet and whose occupation requires them to assume a posture conducive to the weakening of the leg and foot muscles are usually victims of these complaints. The corrective treatment is simple. Remove predisposing causes such as short hosiery, improperly fitted or constructed shoes and have patient fitted to

Dr Scholl's
Corrective Foot Appliances

which are scientifically constructed to relieve muscular and ligamentous strain, remove abnormal pressure and restore foot to usefulness. There are distinct types of appliances for each condition. All quickly and easily adjusted to any degree of elevation or curvature, assuring the physician dependable results.

Leading shoe dealers and surgical supply houses in every locality carry Dr. Scholl's Appliances and have also been instructed in Anatomy of the Foot and the proper method of adjusting the appliances to fit both foot and shoe.

Send Coupon for New Pamphlet

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Fill out the coupon for your copy of "Foot Weakness and Correction for the Physician"—just published.

Write for important pamphlet just published, "Foot Weakness and Correction for the Physician," and a chart of Foot exercises as endorsed by the U. S. A. Medical Dept.

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stances disproved that only the very rich and the very poor can "afford" a nurse. All that is necessary in times of sickness is to have the patient or a friend or relative telephone to the nearest service center, and in from fifteen to twenty minutes, with no further red tape, a nurse will be at the bedside of the patient, call in the aid of a physician if necessary, and visit the patient once a day thereafter, attending to his wants and needs, and leaving instructions for his care until her return the next day.

"Our greatest satisfaction," explains Miss Wald, "is that we have been able to lift the stigma of the charitable institution from the Visiting Nurse Service. The movement today is 40 per cent self-supporting. Some patients pay the full price of $1 per visit—others pay in part—and many pay nothing at all, but that is a temporary condition. I mean that a family that is on the non-paying list one year almost invariably, with the bettering of their financial status, the next year becomes either a part-paying or a full-paying subscriber to our service."

As our plan crystallized, Miss Brewster and I were certain that a system of nursing the sick in their homes could not be firmly established unless certain fundamental social facts were recognized. We tried to imagine how loved ones for whom we might be solicitous would react were they in the place of the patients whom we hoped to serve. With time, experience and the stimulus of creative minds, our technic and administrative methods have naturally improved, but this test gave us vision to establish certain principles, whose soundness has been proved during the growth of the service.

We felt that the nursing of the sick in their homes should be undertaken seriously and adequately; that instruction should be incidental and not the primary consideration; that the etiquette, so far as doctor and patient were concerned should be analogous.

An estimate made some time ago, and since confirmed, shows that 90 per cent of sickness is cared for in homes and only 10 per cent in hospitals. The Visiting Nurse Service takes care of more people than thirteen hospitals combined could possibly take care of at the same time. It is useless to argue that if a city provides the hospitals the people when sick should go to the hospitals. The largest proportion of sickness has been and will continue to be cared for in the homes. It is the function of the Visiting Nurse Service, not only to give the sick in their homes skilled nursing care, but also instruction in personal hygiene, sanitation and the prevention of disease.

"Enthusiasm, health and common sense on the part of the nurses," according to Miss Wald, "are essential, for without the vision of the importance of their task, they could not long endure the endless stair-climbing, the weight of their bags and the strain upon their emotions."

Dispensary Service in U. S.

THE first presentation of dispensary data by the Council on Medical Education and Hospitals of the American Medical Association is made in the *Journal* of the American Medical Association issue of August 5, 1922. The statistics are based on an extensive survey of the dispensaries, outpatient departments, clinic, and other medical institutions having to do with the care and treatment of ambulatory patients, the figures being drawn from reports received from the superintendents, medical directors, or other executives of the institutions studied. Acknowledgment is made for the valuable assistance in the survey rendered by officers of national health agencies, hospital associations, and voluntary medical organizations serving ambulatory patients. Quoting from the report:

Information is published in regard to 3,243 institutions from which reports were received and which are known to exist. Of the 3,243 dispensaries listed, 946 are outpatient departments of hospitals or independent dispensaries which provide general medical and surgical service for their patients, while 2,297 are special dispensaries, such as those for tuberculosis and venereal diseases; mental hygiene and baby and child hygiene clinics; dispensaries of eye, ear, nose and throat and orthopedic hospitals; dispensaries connected with industrial plants, and offices and stations of the United States Public Health Service.

One of the tables published gives the distribution of general dispensaries by states. Of the 946, New York State has the largest supply, 163, followed by Pennsylvania with 136, Massachusetts with 74, California with 56, and Illinois with 48. In regard to the numbers of patients cared for, New York naturally leads with 1,182,818, followed by Pennsylvania with 537,438; Massachusetts with 268,775; California with 193,920, and Illinois with 169,872. Of the 3,872,345 patients attending the general dispensaries, 2,717,850, or 70 per cent, attended dispensaries in the fifty largest cities. In New York, of the 1,182,818 dispensary patients, 958,622, or 81 per cent., are in New York City.

Reports received from special dispensaries show that although on the average they cared for smaller numbers of patients, at the same time the patients, as a rule, made large numbers of visits. An estimate for the 2,297, based on definite reports which were received from the majority, indicates that these institutions cared for a total of 3,750,000 during the year who, during that time, made approximately 16,000,000 visits.

The total number of patients in all dispensaries during the year, therefore, was approximately 8,000,000 who, during the same time, made approximately 29,500,000 visits to those institutions.

One of the live problems relating to dispensaries is the abuse of such service by patients who are able to employ physicians. Investigation indicates that this abuse is not so extensive as has been supposed. The problem is being solved by a careful investigation of the financial status of patients, which is being done by many dispensaries through a cooperation with bureaus of charity which keep a register of the financial status of those seeking financial assistance.

Another problem is the establishment of a schedule of fees for the various services rendered by the dispensary and varying in accordance with the extent of the services rendered. A large number of dispensaries have already established such schedules, but there is no uniformity among dispensaries in the fixing of such charges. There is, also, an evident lack of justice to the patient and of economy to the dispensary in the disproportionate charges for different services in the same dispensary, such, for example, as a charge of ten dollars for roentgen-ray examination, with no charge for a Wassermann test. The next few years will doubtless see much progress in regard to the fixing of reasonable fees so that a larger proportion of the expense of conducting the dispensary can be borne by the patients.

Another problem which in recent years has been given extensive discussion is that of the pay clinics. The object of such clinics is to enable patients who cannot afford to pay the fees charged by physicians to secure satisfactory medical and surgical service at lower rates. Such clinics will be instruments of great good if they accept only such patients as are referred to them by physicians or who are found, on investigation, to be unable to pay full fees. In this way the pay clinic will work in cooperation, and not in competition, with the medical profession.

We find no record of any survey of dispensaries having been made until that by the United States Census Bureau in 1910; at that time there were only 574 including both general and special dispensaries. An estimate in 1916 placed the number at 900. The present survey gives definite information in regard to the existence of 3,243 dispensaries, not including several hundred others in regard to which there appears to be authoritative evidence regarding their existence but from which thus far it has been impossible to obtain reports. Including the latter, the total would be more than 4,000.

The increase in population in the country has had some influence on the development of outpatient dispensaries, but the chief stimulus, especially in recent years, has been the increasing popularity of the dispensary as a place to secure satisfactory medical service.

No Growth Without Vitamines

The Bio-Chemical Laboratory of the University of Cambridge recently conducted an exhaustive investigation to determine whether the vitamines known to be present in the raw materials from which VIROL is manufactured were present in their active state in the manufactured VIROL as sold to the public. This report which fully proves the presence of the vitamines in VIROL will be sent to any medical man on application.

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Coffee a Safe Stimulant

RESEARCH now being carried on by Prof. Samuel C. Prescott, professor of industrial biology and director of the scientific coffee research at the Massachusetts Institute of Technology, has led to the conclusion that coffee is a safe stimulant.

Study of the literature of coffee reveals the many varying chemical analyses of coffee, the totally opposite opinion expressed on the same points, and the necessity for revising entirely the methods of testing. The method used in the research to determine the amount of caffein has been repeatedly tested and a standard arrived at for the purpose of determining the best methods of making the best beverage coffee possible.

The effect of caffein is well known For the great majority, it is merely a mild heart stimulant, increasing the power to do muscular work, and to concentrate, thereby increasing the power to do brain work. Caffein can be taken by the vast majority of healthy adults without subsequent narcotic or depressant effect, but excessive amounts incite temporary disturbances in the central nervous system.

Experiments conducted by Professor Prescott and his assistants have shown that most persons prefer coffee which has not only *not* been brought to the boiling point, but which has been prepared at a temperature considerably below this point.

The kind of receptacle in which coffee is made has much to do with its flavor. Actual tests on a number of consumers revealed that the majority prefer coffee prepared in a glazed pot, including utensils of glass, porcelain, vitrified earthenware, or agate ware, and not brought into contact with tin, copper, aluminum, silver, or other metal. "Many of these metallic substances yield pronounced flavors when covered with an organic solution such as coffee infusion," says Professor Prescott. This flavor is particularly marked in the case of tin, tin-plate, and copper containers.

The majority of the test subjects liked coffee best prepared in the following manner: Bring the water to the boiling point, remove from the source of heat for a moment or two and then add the coffee. This brings down the actual temperature of reaction to a point below that at which the severe chemical change takes place. Do not start with water at the temperature desired for reaction.

The filtration or drip processes yield a good coffee if made with fresh materials and with the right conditions of time, temperature, and utensils. The use of percolation processes in which the ground coffee is constantly subjected to repeated treatment with hot water, or coffee infusion, yield much less desirable results, according to the report. Long continued heating processes or those in which the coffee is actually subjected to boiling are even worse, for they bring into solution bitter or astringent substances and drive out of solution the fine aroma which can only be obtained by retaining the evanescent ethers and volatile oils.

Other important components of coffee besides caffein are the oils, waxes and resins, and the ethereal compounds which give the delicious aroma to a properly prepared beverage coffee or to freshly roasted coffee. Though exceedingly small in quantity, the oil is important from the standpoint of aroma and taste and soon evaporates from ground coffee that is not tightly sealed. Coffee lacks the gallatannic acid type which occurs in tea leaves, oak bark, hemlock, etc.

The various kinds of water seem to have little effect on the quality of beverage coffee. Thus far the experiments have only been made with samples of New England water, including distilled, hard, medium, and soft waters of both ground and surface origin. Results indicate that waters containing considerable amounts of alum or of chlorin as well as waters excessively high in alkali might well affect the results adversely in the preparation of coffee.

Coffee not brought to the boiling point but considerably below this has been preferred by the majority of consumers tested out. Experiments with coffee made from a temperature of 85 degrees C. (185 degrees F.), at 90-93 degrees C. (about 200 F.), and coffee made above 95 degrees below the boiling point have been compared, the lower temperature meeting with favor, while coffee which has been boiled for even a short time has met with great distaste.

Experiments thus far have shown that the best coffee is that made by filtration which produces a clear good coffee if made with fresh materials and with the right conditions of time, temperature and utensil.

The research into the physiological effect of the different elements of coffee on individuals is being carried on by Dr. Mendenhall, head of the department of physiology at Boston University. While the study is not yet complete it would appear that our notions regarding the deleterious effects of the rational use of coffee should be transferred to its abuse and to faulty methods of preparation in a metallic coffee pot rather than to the coffee itself.

Underwood & Underwood.

The belief that coffee stimulates them to greater mental and physical effort, well appreciated by these Cincinnati fire fighters flocking about the "coffee engine," is substantiated by recent coffee research at the Massachusetts Institute of Technology which has evolved a scientific method of making coffee in which all of the aroma and taste are preserved.

IN THE ANNALS OF MEDICINE *and* BIOCHEMISTRY . . .

they tell the value of *YEAST THERAPY*

A prominent professor of therapeutics and doctor of medicine writes:

Is an antiseptic—increases resistance to certain infections—has laxative effect—checks fermentation. "Yeast . . . . is more or less of a gastrointestinal antiseptic, increases the movements of the bowels, cleans a coated tongue, stimulates the production of white corpuscles, and often seems to aid in combating various streptococcic and staphylococcic infections. Hence it is a valuable treatment for septicemia and for boils and carbuncles.

"Besides the laxative effect of yeast, it has the ability to change the flora in the intestines and to more or less check fermentation. It should be much more frequently given in illness in which there is intestinal disturbance, especially if it is associated with constipation."

A professor in a great American University writes:

Rich in B-vitamin—beneficial effects. "The claim made for their use (yeast cakes) rests on a perfectly firm basis: they are rich in 'B' vitamin, the proteins of the yeast cake are of good quality and the cake contains no ingredients poisonous to man. Many people are reporting beneficial effects from their use."

A noted professor and author of well-known text books says:

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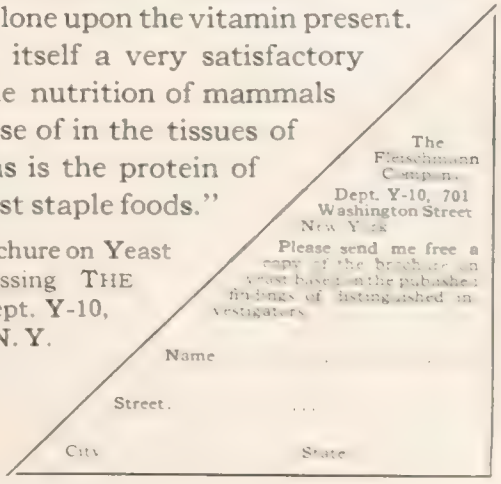
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Objective Methods in Vocational Guidance

By B. K. HANSON, Metropolitan Boys' Work Executive, Rotary Club, Newark, N. J.

DURING the war thousands of school boys were attracted to the industrial world by high wages while many others went on farms as cadets to increase production with a result that child labor laws were in some states eliminated and, in others, the ages were lowered and the youth of our country started on its great swing away from school.

Industrial readjustment caused so many boys and young men to be thrown out of employment that they soon became a social problem, the chief difficulty being centered about the average youth of fourteen to eighteen years at the close of the war. Some effect was noted on the boys in the grades as well as the secondary schools with a result that the Government encouraged a "Stick-to-School" movement through the Department of Labor but as this was not accepted on a national scale it did not accomplish its purpose.

Rotary International believed in the fundamentals of the Stick-to-School Campaign movement and set out through one thousand or more clubs to promote a similar program, naming it a "Back-to-School Campaign," adding a vocational aspect. The favorable results during the past two years are quite apparent. Boys *are* interested in their future, but do not always know where they may secure advice. Rotary, with its men of diversified business experience, is in a strategic position to assume some responsibility in "helping boys to help themselves."

The Situation Surveyed

In Newark N. J., a city of nearly one half million population with a splendid school system, a study of the high school enrollment revealed a great falling off of students during the freshman year. This was also true of those finishing elementary school. These facts were a revelation that commanded the attention of the local Rotary Club and aroused its membership to launch a city-wide "Back-to-School" campaign.

More than eight hundred boys graduated from the elementary schools in June, 1922, and through the cooperation of the Board of Education the names and addresses of these graduates were secured. A carefully prepared letter enclosing a self-addressed postal was sent to each graduate, the letter in a vivid way pointing to the advantages of going to High School and encouraging the boy to continue his education. It also gave him the opportunity to seek an interview regarding his further education. On the postals were four questions to be answered: (1) Do you expect to enter high school? (2) If not, is it because your parents feel they cannot afford it? (3) What business or profession are you interested in? (4) Would you like an interview with a business man regarding your future? The questionnaire sent out is printed below.

The postals which were returned revealed in every case boys anxious for interviews. In checking the returned cards with the school lists, it pointed out very plainly the interest with which boys from the congested districts availed themselves of the privilege, while those from the better homes failed to return the postals. This was an outstanding fact.

In assimilating the returns, boys expressing a vocational desire were directed to a business man in that vocation. A boy interested in civil engineering was booked with an engineer for an interview, etc. In this interview the interviewer was requested first to ascertain if the boy could go through high school, and then to show him in the case of engineering what an engineer's office and equipment looked like—the Transit and Level were explained and the plotting of a recent survey shown. Incidentally the boy was made to grasp that mathematics and drawing

Stick to School Campaign

Name ..... Address .....
Age..... Where born?..... Brought up?..... School?.....
Nationality of father ..... Of mother .....
Are both parents living? ..... If not, which one is living.....
Of what religious faith is your family?.....
Business occupations of father and others who help support the family.....
.....
Have you ever worked?..... If so, at what?.....
How much did you receive weekly?.....
Have you any system of saving?..... Bank account?..... W. S. S.?.....
Insurance? Investment? ..... Liberty Bonds?.....

Personal Health

In the past two years how much school time have you lost through sickness?.....
.....
What was the nature of the sickness that caused the loss of school time?.....
.....

Mark with a check the following health things which you attend to daily:

Sleep with windows open	Clean teeth
Take 10 deep breaths daily	Eat meals slowly
Drink a glass of water before meals	Stand straight
Take a bath (if not daily, how often?)	Play out-of-doors
Wash hands before meals	Get ten hours' sleep

Personal Characteristics

Underline the word that seems to answer the question for you:

ARE YOU	Backward	or Courageous	Unsociable	or Sociable
	Stern	or Gentle	Alert	or Absent-Minded
	Generous	or Thrifty	Hasty	or Slow to Anger
	Orderly	or Disorderly	Self-indulgent	or Master of Your Appetite
	Warm-	or Cold-Hearted		

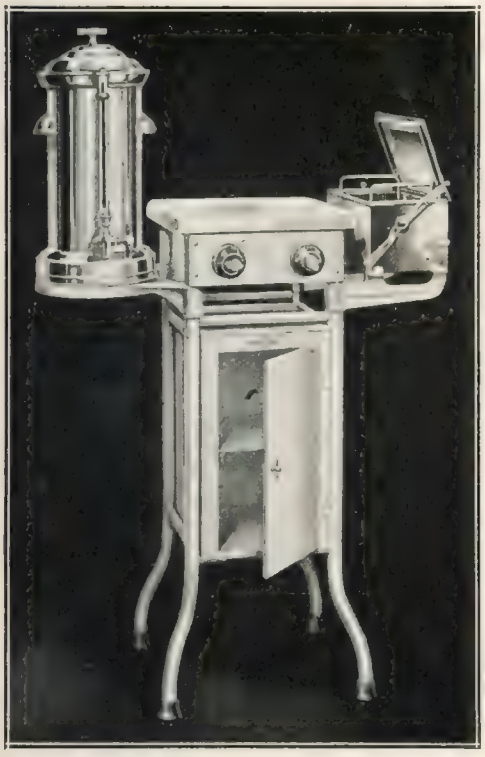
Personal Interests

Of all the books you have read, what is your favorite?.....
What magazine do you like best?.....
Do you attend Church regularly?.....
Are you living up to your pledge to the Flag?.....
What are you interested in becoming when you enter business?.....
Why do you make this choice?.....
What do your parents want you to become?.....

Your Future

What do you plan to do—go to High School or work?.....
Do your parents need your support?.....
How much do you think you could earn the first year upon graduating from Grammar School?.....
How much do you think you could earn the first year upon graduating from High School?.....
Don't you think it pays to go through High School?.....
How will you try to go through High School?.....
.....
.....
.....
.....

Your future depends on your education -you are paid for what you know. Decide to "STICK-TO-SCHOOL."



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Instruments can be removed by sterile hands.
Water in gauge glass is sterilized.
Electrically heated, it can't boil dry.
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A sterile, stable solution in nonsoluble glass ampoules, 5cc containing 8 mgs. (1/8 grain) of Mercury Oxycyanide

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The superiority of these solutions of Mercury Oxycyanide over the intravenous administration of the so-called acid salts of mercury, bichloride, biniodide, etc., is due to the fact that they are less apt to cause irritation of the veins, a common fault of most soluble mercury compounds.

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are two essentials in engineering. The interviewer could then talk with the boy as to the subjects he was most proficient in while in elementary school and, if drawing and mathematics were found among his weaker subjects, stress was given this point during the interview, and he was told the necessity of mastering both subjects. Further, the boy learned it was necessary to secure a college education or its equivalent at some institution of higher learning. The cost and opportunities for working his way through were discussed and the boy thus encouraged to enter high school. This plan was carried on in all cases where interest was expressed in various vocations.

In many cases the boy told his chums of his interview and often they sought similar advice. In this way the plan reached older boys already in industry but dissatisfied with their positions, and many were given suitable advice to attend evening school to become better equipped for the business preferred.

During such interviews with boys a splendid opportunity is offered to stress health. To illustrate: a boy seventeen from a poor home in a foreign quarter of Newark showed he was troubled with adenoids. When this was called to his attention it was found that his parents could not do without his earnings for the time necessary for the operation. They did not realize the continuous colds their boy had taken the previous winter were caused from this physical condition. The interviewer called up a Rotarian physician to ascertain how an operation of this kind could best be done; soon the boy was operated on successfully at the City Clinic with the Rotarian physician on hand volunteering his services. The firm which employed the boy, when informed of the case, paid the boy's salary during the period of his treatment and convalescence.

Similar cases of carious teeth, skin disorders, smoking, late hours, the lack of cleanliness in appearance and the inculcation of health habits of sleeping with windows open, daily bath, drinking water before meals, etc., were stressed. Health hints given by a business man in a business office certainly make a greater impression on the individual than when explained in a routine way in the school room. One of the finest explanations of Vocational Guidance as far as the health is concerned was set forth in a recent article in the NATION'S HEALTH by Dr. Sidney I. Schwab who speaks with authority on the subject of "Mental Hygiene." Mental breakdowns are clearly attributable to the selection of a trade or business not best suited to the individual's ability, thus he often sacrifices the best that is in him by plugging along in the wrong vocation. This is one way of producing the tired and dissatisfied routinist of which in America there is a vast army.

Vocational Guidance is not a new idea. It was practiced very satisfactorily in the day of Benjamin Franklin whose father on Saturdays would spend a portion of the day with his son visiting some of the commercial and industrial plants of their days. In this way, young Benjamin was able to see the types of business in this town, and very soon after chose printing as his vocation.

With the industrial and commercial growth of our country, boys and young men have the same opportunities for industrial visitation only on a larger scale.

Large industrial and mercantile plants have carried vocational guidance into their business by the organization of the personnel departments which not only select the workers with care, but prescribe to them courses of study which will make them better fitted to carry on the work required of them in their respective positions.

Added to this branch of personal work, first aid, safety first, group insurance, mutual benefit associations, cooperative plans for home building, and many other phases of welfare work. The employer recognizes the value of a satisfied employee who appreciates intelligent interest and the part the employer has in his individual case.

Schools and Vocations

ONLY within very narrow limits is it possible to predict from the presence of given endowments at an early age a predominance of similar endowments later in life. The interests especially are particularly prone to undergo complete reversal, for which reasons Otto Lipmann, in the *British Journal of Psychology*, holds that schools must aim at a diagnosis of formal endowments only. Vocational study in schools seeks first to establish the degree of individual endowment, and then to determine the specific nature of these endowments, the choice of a suitable vocation being among those considered well within the ability of the individual. The problem, however, is not so simple, for the interest in a given occupation may be quite disproportionate to productive ability in that line. The interest in a majority of cases is determined by the purely material aspects of a vocation. With the actual nature of the work young people are usually quite unfamiliar.

With reference to formal endowments the customary division is made into (1) higher, (2) middle, and (3) lower vocations, as determined by the vocation in which the workers act "freely," by virtue of the intelligence or imagination not being hampered by fixed rules and definite limits. Freedom is greater in learned and artistic than in industrial occupations. Men capable of working along individual lines should avoid vocations in which the nature of the work requires that it be prescribed in all its details.

The activities themselves may be divided into productive, reproductive, and receptive types. Temperaments which admit of easy automatizations may be fitted for work of a fixed and definite kind, and general intelligence and adaptability, according to Lipmann, are of greater moment than specific abilities. He suggests the advantage of work schools to bridge the gap between the school which has permitted no opportunity to observe the behavior of the pupils with reference to various handicrafts and commercial occupations.

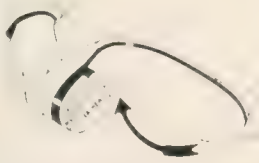
Under no circumstances is the school itself to undertake vocational advice for the reason that the results of tests are to be viewed in the light of the psychological requirements of the various trades and professions. Nor is any vocation to be determined upon even on the basis of special adaptabilities without bearing in mind the economic factors involved, and future opportunities. Qualities also determine the selection of a suitable occupation. A pupil adapted to solitary and individual work may satisfactorily be apprenticed to a private craftsman, but one of a social nature may do better in a factory. The schools should, however, unfailingly impress upon pupils the importance of vocational advice, for in no instance is so momentous a decision to be left to chance circumstances or to a passing mood.

4 MONTHS' RESULTS

A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

GROUND GRIPPER
WALKING SHOES

She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.



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Surgical Operations by Fedor Krause

In the words of Albert Ehrenfried who has translated into English and edited the six volume textbook of "Surgical Operation" by Fedor Krause and Emil Heymann, "the book is primarily a textbook of operative surgery. Its purpose is to tell how to operate and it fulfills this purpose with all the exact detail for which the German mind is noted, interpreted by a wealth of illustrations surpassing any textbook I know of."

The authors approach their subject in a novel way by the presentation and discussion of actual cases which are carefully followed from the beginning through the operative treatment to the end results.

Only Volumes 1 and 2 have so far been received by the reviewer. Volume 1 deals with general surgical technic and with surgery of the head. Volume 2 continues with the surgery of the head and covers brain surgery.

The illustrations are very beautiful and cover almost every step of the operations described. Most of the illustrations are colored, the majority in two color. This brings out the anatomical field with much greater clearness than the usual pen and ink or wash drawing.

The insertion of the clinical notes adds without doubt to the interest of the book but detracts greatly from its practical usefulness as a text.

Rebman Company, New York, 1917.

Report of U. S. Public Health Service

The report of the United States Public Health Service for the year 1921 outlines the work of the department as the largest Federal agency for the protection of public health. Its chief functions are the prevention of the introduction of diseases in the United States; the investigation of diseases of man and stream pollution; the supervision and control of the biologic products; public health education; and the operation of hospital service for various groups including disabled ex-service men and women.

In the division of scientific research, special emphasis has been laid upon rural health demonstrations in cooperation with the states. Researches into child hygiene, industrial sanitation, and particular diseases have been carried on. The hospital service had to expand rapidly to meet the emergency following the signing of the Armistice. Since the beginning of the work the Service examined some 1,000,000 applicants for compensation, furnished hospital care to 200,000 patients, dispensing treatment to 1,300,000 patients, dental service to 75,000 patients, and occupational therapy to 10,000 patients per week.

Foreign and domestic quarantine regulations are largely for the suppression or prevention of epidemic diseases. The rat campaigns, the reporting of communicable diseases, the supervision of water supplies are all a part of a general program. Sanitation and medical assistance in the national parks were established after investigations by Service engineers. The installation of garbage cans, the testing of water supplies, and the disinfection of privy vaults are of great importance in such universal pleasure spots. Data concerning the type and prevalence of diseases in the parks will be collected.

The matter of supervising the transportation of diseased persons on common carriers in interstate traffic and the transportation of articles from disease infected localities with attention to the sanitary conditions on carriers has been controlled as far as possible under interstate quarantine regulations but there is room for the development of much more effective work here.

Shock Exhaustion and Restoration

A remarkable monograph by Dr. George W. Crile is brought out under the title, "A Physical Interpretation of Shock Exhaustion and Restoration." It should be carefully read by all physicians, whether they are practicing surgery, medicine, or any of the specialties. Crile has brought together here his vast experimental work, and has indicated the clinical application of the investigations which which he has conducted for years. He gives his ideas about surgical treatment and also, one might say, his philosophy of surgery. Since Crile is a truly great surgeon, his conception about surgery should be of extreme importance to everyone.

A careful critical analysis of this book is not possible in the limited space. It can be stated, however, that there are many who doubt the importance of the results claimed by Crile as regards changes in nerve and other cells as the result of exhaustion. By some the method which he uses to distinguish between a rested cell and an exhaust cell, differentiation by means of the staining reaction of these cells after they have been fixed, is considered a crude and inaccurate method. This criticism also appears to the reviewer as being justifiable. Nevertheless, this is only one phase of Crile's work, and his investigations reach much further than this.

There is one thing which stands out prominently, whether the theoretical conclusions which Crile deducts from his experimental work are correct or not. The practical methods which these have given rise to in the actual treatment of surgical patients, are undoubtedly correct. Crile's system for preparing a patient for operation and for treatment after operation is the most extensive one which has been reported, and is the most logical and common sense system known to us. Undoubtedly more care is given these matters in Crile's hospital than in most others, since many hospitals are lamentably or even criminally negligent of these supremely important matters. It is hoped that many surgeons will follow Crile in his practice of treating patients, whether they follow him in his theories or not.

Oxford Medical Press, London, 1921.

Graphic Methods in Heart Disease

Of late many methods have been added for the study of heart conditions. While nearly every textbook on physiology contains a description of some instruments used for the study of the heart mechanism, the average physician has no access to a practical book on methods by which heart disturbances can be detected. John Hay's "Graphic Methods in Heart Disease," therefore, supplies a distinct want in medical literature. Of course it is not expected that every physician will make use of the instruments and records described in this book.

Oxford University Press, New York, 1921.

Transactions of the American Pediatric Society

The Transactions of the American Pediatric Society usually contain the latest word in Pediatrics. The volume for 1921, edited by Joseph Brennemann, is no exception to the rule. Some of the more advanced work in pediatrics done during 1921 has been incorporated in this volume. It was ably edited by Dr. Joseph Brennemann, of Chicago.

Arhovin

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Dosage: One or two capsules, three to six times daily, after meals.

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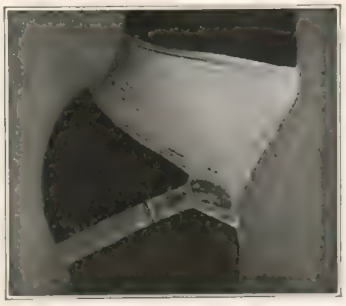

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FROM THE FIELD

The twelfth annual meeting of the American Child Hygiene Association, of which Herbert C. Hoover, Secretary of Commerce, is president, met at Washington, D. C., October 12, 13, and 14. Among the speakers were Mr. Hoover, Sir Auckland Geddes, Dr. L. Emmett Holt, and Miss Elizabeth Fox of the Red Cross.

At the International Health and Safety Exposition to be held at Oakland, Cal., November 17 to 26, the field of public and private health will be presented by means of charts and lectures with special emphasis on disease prevention and health education among children.

The Colorado Tuberculosis Association, Denver, will hold a two weeks' institute on the nutritional problems of children from October 18 to November 1. Dr. Wm. R. P. Emerson of Boston, will be in charge. The Institute is being conducted especially for physicians, public health nurses, dietitians, social workers, physical education and home economics teachers.

The first National Standardized Health Exhibition was held in the Twenty-Third Regiment Armory, Brooklyn, the week of October 7. The National Health Council, the Kings County Medical Society Health Committee, the Brooklyn Chamber of Commerce Health Committee, the New York City Health Department, and the Safety Institute of America [illegible] the exhibition.

Sweeping reductions in employers' liability insurance rates, averaging 20 per cent, have been approved and promulgated by William E. Tuttle Jr., State Banking and Insurance Commissioner of New Jersey. The new rates went into effect September 1. This is the first time reductions on such a scale have been made since the Compulsory Liability Insurance law went into effect in 1917, and is the first to be based exclusively on the experience of the New Jersey Banking and Insurance Department, using figures obtained in New Jersey industries. It is estimated the saving in manufacturers' overhead costs will amount to $1,000,000 annually.

Bringing the College of Medicine and Surgery to the University of the Philippines up to the recognized standard of class "A" colleges of this sort in the United States by revision of the college curriculum and the establishment of a central nursing school that will double the number of trained nurses graduated annually in the Philippines are two of the important measures regarding public health and the control of diseases that have come about from the work of Dr. Victor G. Heiser, Far Eastern representative of the Rockefeller Foundation, since his arrival there.

With the purchase of the former residence of R. Hall McCormick at the northwest corner of Rush and Erie streets, Chicago, by Dr. Franklin H. Martin, owner of the Surgical Publishing company, and the contemplated erection of the Dr. John B. Murphy memorial on the site between it and the American College of Surgeons, Chicago's aspiration to become the surgical center of the western hemisphere will be furthered.

Dr. Martin, who is an organizer of the American College of Surgeons and its director general, will move his company which publishes *Surgery, Gynecology, and Obstetrics* to the former McCormick residence. It is his stated intention to present the surgical journal together with its new home to the American College of Surgeons. The John B. Murphy Memorial to be erected between the two buildings will contain a memorial hall open to all medical societies, a medical library, and a museum.

Michigan is holding a series of health institutes in various parts of the state lasting from October 2 to December 2. The counties to be visited during the two month period are Montcalm, Mecosta, Clinton, and Oakland. The personnel of the newly organized institute staff consists of Dr. Frank A. Poole, lecturer and field director of the unit; Dr. Florence A. Browne, head of the infant unit; Dr. C. A. Wilson, head of the tuberculosis division; Dr. Frank Rose, head of the children's unit; Melita Hutzel, lecturer, and Lucile Moore, assistant director of the bureau of education, organizer. Three nurses will assist the clinicians.

A reward of one million dollars will be offered by the United States Government for a successful cure of tuberculosis, cancer, paralysis, epilepsy, or dementia praecox, should the bill introduced by Representative Sproul of Illinois become a law.

The Southern Medical Association will hold its sixteenth annual meeting in its birth city, Chattanooga, Tenn., Monday, Tuesday, Wednesday, and Thursday, November 13-16, 1922 under the presidency of Dr. Seale Harris, Birmingham, Ala. Dr. E. D. Wise, City Health Officer of Chattanooga, will deliver the address of welcome, which will be responded to on behalf of the Southern Medical Association by Dr. W. S. Leathers, State Health Officer of Mississippi, Jackson, Mississippi. Dr. C. C. Bass, Dean of Tulane Medical College, New Orleans, will deliver the Oration on Medicine, Dr. Hubert A. Royster, Raleigh, North Carolina, the Oration on Surgery, and Dr. S. W. Welch, State Health Officer of Alabama, Montgomery, Alabama, the Oration on Public Health.

At the joint dinner session of the section on surgery and the section on radiology Tuesday night, Dr. George W. Crile, Cleveland, Ohio, will represent the section on surgery, and Dr. George W. Holmes, Massachusetts General Hospital, Boston, the section on radiology. The committee announces that any doctor who is a member of his state and county medical society, although not a member of the Southern Medical Association, who desires to attend this meeting can have the benefit of reduced railroad rates by requesting a certificate from the Association office.

Free physical examinations were made by physicians of the state department of public health at the Illinois State Fair, under the direction of Dr. Isaac D. Rawlings. Blood pressure tests were made and registration cards with height and weight were given out. Opportunity was taken to urge annual physical examinations. At the Pageant of Progress, Chicago, 15,000 were examined.

With the end of the fiscal year the Interdepartmental Social Hygiene Board went out of existence, no appropriation for its continuation having been made. No action has been taken on the bill introduced authorizing the Department of Justice to take over the work of this board.

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Kentucky will conduct a mental hygiene survey of inmates of penal institutions and all school children in an effort to reduce the number of criminals and defectives in the next generation. Dr. Frank O'Brien, secretary of the Louisville Society for Mental Hygiene, is secretary of the advisory committee. The National Committee for Mental Hygiene is sending six experts to cooperate in the work.

The University of Maine, Orono, and Bates College, Lewiston, gave courses in public health at their sessions the past summer.

Dr. Delos J. Bristol of Harvard University has been appointed head of the department of public health and preventive medicine recently created at the University of Minnesota.

The Pennsylvania State Health Department, through the division of restaurant hygiene, required that all persons handling food at country and local fairs undergo a physical examination and furnish health officers' certificates showing freedom from contagious disease. Seventy-two fairs, having 2,300 refreshment stands, were covered by the inspectors last summer.

Arrangements have been completed with the U. S. Public Health Service, the State Board of Health of South Carolina, and the Seaboard Air Line Railway for an extensive survey by a sanitary engineer of the lands connected with that railroad in the state, with a view to extensive health control along the entire line. The malaria survey will be continued from Andrews to the Savannah river line and thence to Jacksonville, Fla.

A large bronze memorial tablet to the memory of the officers, nurses, and enlisted men of the medical department, U. S. Army, who lost their lives during the war is to be erected in the new Army Medical School building now in course of construction at Walter Reed General Hospital, Washington, D. C. Funds for the tablet are to be raised by voluntary contributions limited to one dollar and the list of contributors is restricted to those who saw service as officers, nurses, or enlisted men of the medical department during the war. Lieut. Col. Paul C. Hutton, M.C., Office of the Surgeon-General, Washington, D. C., is in charge of the fund.

The American Red Cross announces that scholarships in a score of educational institutions are open to former members of the Army and Navy Nurse Corps, according to a decision recently made by the Trustees of the estate of the late La Verne W. Noyes, wealthy inventor and manufacturer of Chicago. The action of the Trustees, it was explained, was taken upon information supplied by the office of Major Julia Stimson, head of the Army Nurse Corps.

To determine whether any American community, with proper organization and at reasonable expense, can reduce its tuberculosis death rate to a nominal minimum, and to ascertain the proper organization and per capita costs of such undertakings applied to large cities and rural counties, the Milbank Fund has developed survey plans in consultation with a group of the most prominent experts in public health and social work, including the following: Dr. William H. Welch, Johns Hopkins University; Dr. Hermann M. Biggs, New York State Commissioner of Health; Dr. Livingston Farrand, President, Cornell University; Homer Folks, Secretary, New York State Charities Aid Association; Bailey B. Burritt, General Director, New York Association for Improving the Condition of the Poor; Dr. James Alexander Miller, President, National Tuberculosis Association; Dr. Haven Emerson, formerly Commissioner of Health, New York City; Dr. Edward R. Baldwin, Trudeau Foundation, Saranac Lake; Dr. Lawrason Brown, Director, Trudeau Sanatorium, Saranac Lake; Dr. Allen K. Krause, Editor, *American Review of Tuberculosis;* Dr. Charles J. Hatfield, Managing Director, National Tuberculosis Association; Dr. Donald B. Armstrong, Director, National Health Council; Dr. Lee K. Frankel, Vice-President, Metropolitan Life Insurance Co.; Henry S. Dennison, Dennison Manufacturing Co., Framingham, Mass.; Prof. E. R. A. Seligman, Columbia University; Prof. W. G. Wilcox, Cornell University; Dr. Louis I. Dublin, Statistician, Metropolitan Life Insurance Co.

The Fund proposes to initiate a series of not more than three demonstrations in New York state cities and counties which will assist in their operation and support. A fund of between $300,000 and $400,000 annually for the next five years will be available for purposes of the demonstration in various communities, the Fund announces.

An annual prize of $25,000 to the American who makes the most notable contribution to chemical science has been offered by the Allied Chemical and Dye Corporation of New York City. The award is to be made by a committee of seven of which Dr. Edgar F. Smith, President of the American Chemical Society, is chairman. The committee members are to have no connection with the corporation.

India leads the nations in mortality with a death rate of 37.20 per thousand, according to United States Government statistics. Italy ranks fifth on the list with a rating of 10.31 per thousand males at the age of 45. Norway, Holland, Sweden, and Denmark have still better ratings. Next to Italy comes Australia; then England, Germany, Switzerland and the United States.

A contribution of $90,000 has been made by the Rockefeller Foundation to the Commission on Hygiene of the League of Nations.

The School of Education of New York University will establish a chair of educational sociology this fall, with Prof. E. George Payne, former president of Harris Teachers' College, St. Louis, in charge. Professor Payne will institute a course in education in accident prevention at New York University in addition to his other work.

The Michigan state administrative board has authorized the Health Department to secure the personnel of a psychiatric unit in order that a scientific report of each inmate eligible for parole might be made. The per cent of men who return to prison in Michigan at least, would be greatly reduced if paroles were subject to the recommendation of such a unit.

According to a comparative study of the health of missionary families in Japan and China and a selected group in America by Wm. G. Lennox, M.D., of the University of Denver, children in Japan show a death rate far below children in China, and even below the selected group in America. The rate for the American societies in China and Japan is almost the same as for the selected group in America. The rate for Methodist ministers in America is 50 per cent above that for Methodist missionaries in China.

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Birth registration records of children born in Maryland are to be subjected to a complete test under a plan worked out by Dr. John S. Fulton, secretary of the State Department of Health, in cooperation with the Maryland League of Women Voters. Under the plan, one thousand mothers, members of the League, will request from the Department of Health certificates of the registration of the births of their children under five years of age. There is a law in the state requiring a report to the state board of health of the birth of every child, but it is believed that the figures are far from complete. The test is preparatory to the opening of the child hygiene bureau of which Dr. J. H. Mason Knox is chief.

The National Committee for Mental Hygiene recently made a mental hygiene survey of Hamilton County, Ohio, with the findings that two out of every three children coming before the juvenile court were mentally abnormal; that 75 per cent of the inmates of the jail were mental cases; that three out of every four adults, dependent on society for their support, are not in normal mental health; and that thirteen out of every hundred children in the schools deviate from the normal mentally. The establishment of a mental clinic is recommended to ameliorate these conditions. To point out to the people the need of such a clinic in Cincinnati, the Mental Hygiene Council of the Cincinnati Public Health Federation has printed a report of the year's survey of the county's mental health.

With the signing of the Johnson-Mills bill by President Harding on June 10, maritime workers other than seamen have been brought within the protection of the Workmen's Compensation Law. The measure will affect nearly half a million workers in New York State alone.

A report by the United States Public Health Service shows that an average of 8.15 days a year a person is lost through sickness or injury by the office worker in the United States. The figures on which the report was based were carefully compiled by a large Western corporation in the year ending January 31, 1921, during which it employed an average of 1,282 office employes. An exact record was kept of the hours of work lost by each person from sickness or injury, the sickness being diagnosed by the medical department or physician.

The Florida State Board of Health has issued a bulletin on Mosquitoes and Mosquito Control prepared by George W. Simons, Jr., Chief Sanitary Engineer, and George F. Moznette, Entomologist, Bureau of Entomology, U. S. Department of Agriculture.

The International Health Board of the Rockefeller Foundation has entered into a cooperative arrangement with the health organization of the League of Nations whereby for a period of five years an epidemiologic intelligence service will be maintained. The Board also set aside a sum not to exceed $60,000 a year to effect a scheme for the international exchange of public health personnel to be conducted under the auspices of the health organization of the League. The intelligence service is expected during the five year demonstration period to prove so valuable as to become indispensable to the several governments served and to justify provision of funds for its permanent support.

Workmen's compensation in Pennsylvania totals $5,782,658 for the first six months of 1922. There were reported 66,257 accidents during this period. Of this number 855 were fatal, 68 caused permanent disability and 65,334 ordinary disability. There were in the cases compensated 76 leg losses, 55 arm losses, 148 hand losses, 97 foot losses, and 305 eye losses. For each eye lost through industrial accident $1,443 was awarded in compensation during the six months' period, 305 eye losses costing in compensation as much as 133 lives. The award for eye losses was twice as great as any other award for permanent injury.

A survey of building conditions in fifty large cities during the last twenty-two years has been made by Colonel Leonard P. Ayres, economist for the Cleveland Trust Company of Cleveland, Ohio. It shows that it would require the full-time efforts of the building industry for two and one-half years to make up the shortage. New York is short 2.1 years, which means that the industry would have to work at 25 per cent above normal for eight years to catch up.

The greatest indicated shortage is in Portland, Oregon, amounting to 3.5 years. Thirty-two cities have greater need of building than New York and seventeen have a smaller shortage. The most serious conditions are in the Western cities.

The National Research Council has appointed the following committee to conduct research into sex problems: Dr. Robert M. Yerkes, Dr. Walter B. Cannon, Dr. E. G. Conklin, Dr. Katharine Bement Davis, Dr. Thomas W. Salmon, Dr. Victor C. Vaughan, and Earl F. Zinn, executive secretary.

Another example of the dangers of constricting the body is found in the cases of neuritis caused by wrist watches. The tingling pain which occurs on the ulnar side of the hand results from the constriction of the dorsal cutaneous branches of the ulnar nerve against the ulna. Some of the symptoms of this condition resemble those produced by pressure on the lower trunk of the brachial plexus by a supernumerary rib.

The new law recently passed by Congress to strengthen the Harrison Anti-narcotic act, establishes a Federal Narcotics Board to be composed of the heads of the State, Treasury and Commerce Departments, which is empowered to authorize the importation of such quantities of crude opium and cocoa leaves as may be found necessary for medical and other legitimate purposes. Any alien convicted of violating the act is to be deported, while for others a fine of $5,000 or ten years' imprisonment is provided.

The Fordney Tariff bill which places an increased tariff on microscopic, optical, and other scientific instruments and the report that the Senate has refused requests by educational institutions that they be permitted to obtain scientific instruments and apparatus free of duty are decried by the *Journal* of the American Medical Association which considers that the non-exemption of educational institutions from such tariff would be a serious blow to science and scientific medicine.

The Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, Philadelphia, has recently started the publication of a series of open letters to members of the medical profession to give them the latest facts on tuberculosis and allied diseases, based on twenty years of clinical, sociologic, and pathologic research and practical experience. Bulletin No. 1 deals with chronic bronchitis and pulmonary infections other than tuberculosis; Bulletin No. 2 will deal with tuberculosis and syphilis.

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The Boston Chamber of Commerce plans to organize a New England Research Council to study the food supply and marketing problems. President K. L. Butterfield of Massachusetts College was elected chairman of the groups of agricultural colleges and the federal and state departments interested in the formation of the Council.

Twenty countries are now affiliated with the International Research Council which met at Brussels July 25 to 28. Countries represented at the Council meeting were Belgium, Canada, Denmark, France, Great Britain, Greece, Holland, Italy, Japan, Norway, Poland, Portugal, Spain, Switzerland, Sweden, Czecho-Slovakia, and the United States. Plans for the formation of an international scientific union contemplated at a previous meeting were further discussed. It was decided to keep the medical and physiological sections separate. The executive committee of five was enlarged to include a member from each unit. Officers elected were M. E. Picard, president, G. Lecointe and Prof. Vitor Volterro, vice-presidents, and Dr. G. E. Hok and Sir Arthur Sebrustro, general secretaries.

An act providing for the parole of inmates of state schools for the feeble-minded has been passed by the Massachusetts legislature. The act authorizes trustees of a state school to permit any inmate of the school to leave the institution on parole for such lengths of time and on such conditions as the trustees may determine. Before granting the parole, the trustees must investigate the home into which such inmate is to go. Other conditions which may affect his welfare are also carefully investigated before the board's permission for parole is granted.

Employees of the postal service in fifty-seven of the largest cities throughout the United States in the future will receive free medical examinations whenever desired, under a plan worked out by the Post Office Department. Such examinations, it was explained, have been authorized by the Treasury Department and will be made by representatives of the United States Public Health Service at their stations in the cities designated by postal officials. The plan is to mark the beginning of a movement to provide as far as possible free medical examinations for all postal employees.

The number of babies given away in New York City through advertisements in the daily newspapers averages one a day, according to the State Charities Aid Association, which has just announced the results of a six months' study of the subject. This investigation showed that large numbers of unmarried mothers and married couples are surrendering their babies to strangers about whose morals, personality, financial standing, and standards of living they know practically nothing; that children of unknown history and family traits, who are possibly feebleminded or tainted with disease, are being taken over by ignorant but in many cases well-meaning foster parents. This indiscriminate giving away of children works great hardships upon individual children and individual foster parents and also has the effect of discrediting intelligent home-finding work done by competent agencies. Presumably the same practice of advertising children for adoption is going on all over the country; the children thus disposed of form a small part of the number of those who without legal procedure are passed from one individual to another, the Association has discovered.

The constitutionality of the Sheppard-Towner Maternity law was attacked today by the State of Massachusetts, in a petition filed in the Supreme Court of the United States asking permission to bring an original suit against Andrew Mellon, Secretary of the Treasury, the Chief of the Children's Bureau of the Department of Labor, the Surgeon General of the Public Health Service, and the Commissioner of Education, who, under the act, constitute the Board of Maternity and Infant Hygiene. This is the first attack before the court on the constitutionality of the measure. The proceeding was instituted by order of the General Court of Massachusetts, and would restrain those charged with the enforcement of the law from carrying its provisions into effect, especially by prohibiting the expenditure of any public funds. Massachusetts contended that the act was unconstitutional and void because it would impair and violate her sovereign rights and the rights of her citizens.

The response to the announcement of the correspondence course for public health nurses which will be conducted for the New York State Department of Health by New York University and Bellevue Hospital Medical College has been so enthusiastic that it will probably be necesary later to repeat the course. There have been 287 applications for enrollment in the first course of which 229 have paid the matriculation fee and have been accepted. It has been decided to close the enrollment at 250 students for the first course. Further applications will be placed on file and if the number is sufficient a second course will be given later in the year.

Safety publishes in its August issue a bibliography of articles dealing with elementary education in safety.

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Volume IV — Chicago, November 15, 1922 — Number 11

American Public Health Association Meeting

THE Fifty-First Annual Meeting of the American Public Health Association, held in Cleveland, October 16-19, was notable first of all from the fact that the aims and policies of the organization were fundamentally defined and clarified so as to make it primarily a professional organization of trained sanitarians. The development and standardization of the public health profession is a problem; the mobilization of popular support for the public health campaign is another.

The feeling that attention divided between these two problems was leading nowhere led at the New York meeting a year ago to the appointment of a Committee on Re-organization with Henry F. Vaughan, Health Officer of Detroit, as chairman. This committee recommended at Cleveland that "the objectives of the Association should be the preparation, study, standardization, and presentation of scientific public health procedures, and the best method by which such knowledge can be given to the public, and the expression to the public of professional opinion in regard to such procedures."

In order to maintain the authoritative position of the Association the by-laws were changed so as to differentiate between associate members (persons interested in public health), members (persons active in the service of public health), and fellows (professional health workers of at least two years standing as members of the Association, and of established professional standing—whether employed by public or private agencies or in independent private practise).

Dr. E. C. Levy, Director of Public Welfare of Richmond, Va., was unanimously elected president for the term 1922-1923. The other officers chosen are as follows: First vice-president, Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, Mich.; second vice-president, Gabriel M. Malda, M.D., Director of the National Department of Health, Mexico; third vice-president, H. L. Rockwood, M.D., Health Commissioner of Cleveland, Ohio; executive secretary, A. W. Hedrich, New York City; treasurer, Roger I. Lee, M.D., Harvard University, Cambridge, Mass.

Dr. E. C. Levy, Director of the Department of Public Welfare, Richmond, Va., the new President of the American Public Health Association. Dr Levy was born in Richmond in 1868, received the degree of Doctor of Medicine from the Medical College of Virginia in 1890. He took postgraduate courses in public health under Prof. W. T. Sedgwick at the Massachussetts Institute of Technology in 1902-4 and 1903-4. In 1906 he was appointed Health Officer of Richmond and admirably administered the duties of the office till 1917. He was then commissioned as a Major in the Army Medical Corps and stationed at Camp Pike. When Richmond reorganized its city government in 1919, combining health and five other departments into a Division of Public Welfare, Dr. Levy was appointed its director.

Members of the Executive Board, elected were as follows: L. K. Frankel, Ph.D., Metropolitan Life Insurance Company, New York City; Charles J. Hastings, M.D., Health Officer, Toronto, Canada; A. J. McLaughlin, M.D., Assistant Surgeon General, U. S. P. H. S., New York City; M. P. Ravenel, M.D., Professor of Public Health, University of Missouri; Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, Mich.; C.-E. A. Winslow, Dr. P.H., Professor of Public Health, Yale School of Medicine, New Haven, Conn.

Members of the Governing Council elected were:

1923

B. L. Arms, M.D., Jacksonville, Fla.; R. S. Copeland, M.D., New York City; C. V. Craster, M.D., Newark, N. J.; S. J. Crumbine, M.D., Topeka, Kas.; Haven Emerson, M.D., New York City; Lee K. Frankel, Ph.D., New York City; W. S. Rankin, M.D., Raleigh, N. C.; P. S. Schenck, M.D., Norfolk, Va.; C. C. Slemons, M.D., Grand Rapids, Mich.; C. E. Terry, M.D., New York City.

1924

W. A. Evans, M.D., Chicago, Ill.; C. L. Furbush, M.D., Philadelphia, Pa.; C. J. Hastings, M.D., Toronto, Ont.; F. E. Harrington, M.D., Man-

neapolis, Minn.; E. R. Kelly, M.D., Boston, Mass.; J. P. Kennedy, Atlanta, Ga.; F. X. Mahoney, M.D., Boston, Mass.; W. H. Park, M.D., New York City; L. M. Powers, M.D., Los Angeles, Cal.; C.-E. A. Winslow, Dr. P.H., New Haven, Conn.

1925

W. R. Batt, M.D., Harrisburg, Pa.; F. G. Curtis, M.D., West Newton, Mass.; W. H. Dickie, M.D., Sacramento, Cal.; L. I. Harris, M.D., New York City; James Hayne, M.D., Columbia, S. C.; A. J. McLaughlin, M.D., New York City; R. G. Perkins, M.D., Cleveland, Ohio; M. P. Revenel, M.D., Columbia, Mo.; James Roberts, M.D., Hamilton, Ont.; G. C. Ruhland, M.D., Milwaukee, Wis.

Resolutions Adopted

The Association adopted resolutions in commemoration of the life and work of Pasteur; in favor of more adequate teaching of public health in medical schools and in elementary schools; a resolution recording "its conviction that experiments on living animals have proved of the utmost service to the public health in the past, and therefore to civilization, and are indispensable to future progress" and therefore opposing H. R. 12605; and a resolution stating that "there should be but one standard of fitness for all who desire to practice the healing art and but one channel through which persons desiring to practice that art may obtain licenses so to do." Committees were authorized on the defense of research, on public health education in medical schools, on health education in the common schools, and on the incidence and control of pneumonia.

The first general session of the Association was devoted to addresses of welcome by Dr. R. H. Bishop, Jr., former health officer of Cleveland, Ralph Perkins, director of the Department of Public Welfare, and Newton D. Baker, former Secretary of War, now President of the Cleveland Chamber of Commerce, and to the report of Dr. Vaughan's committee on re-organization. The second general session was assigned to the other major undertaking of the year, the report of the committee on municipal health department practise; and to a symposium on public health and politics. The committee on municipal health department practise, C.-E. A. Winslow, chairman, has been engaged during the past two years in a survey of the organization of the eighty-three large municipal health departments of the United States made possible by the generosity of the Metropolitan Life Insurance Company.

The report will be published in full as a special bulletin of the United States Public Health Service during the coming winter and will include three major sections, one dealing with the work of each of the functional divisions of the health department as performed in the group of cities as a whole, a second presenting a plan for an ideal health department for a city of 100,000, and a third setting forth very briefly the status of health department practise in each of the individual cities studied. It is hoped that this report may not only bear some immediate fruit in the development of health departments but that it may also serve as the basis for continued work by the Association along the line of standardizing and advancing public health practice in the future.

In the symposium on Public Health and Politics, Dr. Matthias Nicoll Jr., and Dr. Charles J. Hastings described the success which had been attained in New York state and Toronto in enlisting by enlightened public health work a volume of popular sentiment which ensures the earnest support of the politicians, and Mrs. Maud Wood Park brought a greeting from the League of Women Voters, whose influence has already proved of material value to the cause of public health in many states as well as at Washington.

Public Health Administration

That state medicine is inevitable if the private physician does not aggressively practice preventive medicine and the medical profession as a whole does not assist in the education of the people in matters pertaining to health was the opinion of Dr. John Dill Robertson of Chicago as expressed in the address of the chairman at the opening session of the section on Public Health Administration. The body is a machine that cannot be replaced and the obvious remedy is an annual medical examination. The private physician often takes offense at the receipt of a reference slip from the school physician. In commenting on this deplorable attitude of some members of the medical profession the speaker declared that the "public is not now and never has been interested in so-called medical ethics," and the doctor must leave his present position or the medical profession and the public will both suffer from the activities of the fake who is a real salesman.

A great diversity of ideas was expressed in the symposium on the next step for state health departments. In the opinion of Dr. Eugene R. Kelley of Boston, the most important problem now confronting the state health officer is that of making our available knowledge one hundred per cent effective. While we should not, of course, abandon the search for new facts, sufficient knowledge is now available to do many great things that now lack attention solely because they are unknown to the majority of people. New methods must be devised for the rapid spread of knowledge but autocratic methods must not be used.

Maternity and infant welfare, dental hygiene, nutrition, and mental hygiene were some of the next steps suggested in the discussion. Dr. W. S. Rankin showed that the medical profession did not suffer even financially by the elimination of the acute fatal diseases. Such a disease may take the life of an individual in childhood, in which case the physician has lost a patient, whereas on the other hand, if such conditions are in large measure eliminated the doctor then has a patient who will attain some degree of maturity. The ideal is not to eradicate all illness and put the physician out of business—obviously an impossible thing—but rather to prolong the span of life, which in no way endangers the practice of curative medicine.

Dr. Edward Martin of Harrisburg gave as his opinion that the upper third of the medical profession was composed of leaders, the middle third of those that followed the leaders, and the lower third of the self-centered; that the sanatarian must have the upper two-thirds with him and the lower third against him. Dr. Martin also urged the introduction of courses in personal hygiene into all schools and colleges.

At its second session the section on public health administration devoted itself to plans for the reduction of high mortality from acute respiratory diseases in winter. The general phases of the problem were treated by Dr. W. A. Evans of Chicago. Dr. Evans showed that the general improvement in the death rates had been due to lowering in the summer and autumn quarters while mortality in the winter and spring months has shown but a slight reduction. The speaker said that in his judgment the department of health should be represented on every zoning commission because of the need of sunlight to sterilize the dust of city streets, and that they should, furthermore.

maintain a smoke bureau, a ventilation bureau, and aid in the stimulation of winter sports. He advocated a change in the school year to a period extending from March first to the Christmas holidays. Coryza, tonsilitis and pharangyitis, epidemic influenza, and acute pneumonia were the specific diseases under discussion. The plea was for better reporting, better diagnostic laboratory facilities, more attention to the production of effective curative biological products, vaccination of the inmates of institutions, more stringent control of convalescent carriers, and abundant research on the flora of the upper respiratory tract. Dr. Henry F. Vaughn and Dr. George T. Palmer of Detroit presented a paper on the epidemiological aspects of the problem under discussion. The seriousness of the pneumonia problem, particularly in the cities, was dealt with at length and a new epidemiological classification proposed; namely, epilemic pneumonia, sequel or secondary pneumonia, and endemic pneumonia. In opening the general discussion on the subject Dr. F. L. Hoffman called attention to the great toll of pneumonia in tropical countries and incidentally to the crime of collecting bulky statistics that are never studied.

Dr. W. H. Park in a later session reported on progress in Schick testing and immunization in the school children of New York City. Favorable results and freedom from unpleasant reaction have followed the use of a toxin-antitoxin mixture much weaker than that previously employed. Dr. Herman A. Bundeson, Health Officer of Chicago, emphasized the importance of attention to the pre-school child since 93 per cent of diphtheria cases occur in children under six years of age. He urged the importance of immunizing patients after convalescence in view of the alleged frequency of second attacks. Dr. F. W. Sears of the New York State Department of Health reported the results of Schick testing and immunization in the school children of Auburn. Edgar A. Jonas, President of the Board of Directors of the Municipal Tuberculosis Sanitarium of Chicago, told of the success attained in that city by summoning physicians failing to report cases of tuberculosis before a special hearing board. This type of administrative action has proved exceedingly effective as a substitute for court procedure. The policy of the Chicago authorities, according to Mr. Jonas, is that no open cases of tuberculosis be allowed to remain in homes where there are children, hospitalization being enforced when the patients refuse to go to the sanitarium.

The major portion of the last section meeting was devoted to a symposium on the pasteurization of milk. Mr. Earl B. Phelps outlined the investigation that had been carried on with the support of the Borden Farm Products Company and described the three types of pasteurizing machines in common use. In the continuous type, the speaker stated that the time period was apt to be unsatisfactory since the rate of flow might not be equal in all of the pipes due to eddy currents in the flow. As a result of this action some portions of the milk might be held more than the required time and others might pass more rapidly. In the holding type this time factor is eliminated but the possibility of a leaky distributing valve introduces a grave danger. The vat type while the simplest depends largely for its effectiveness on the operation and attention that is given. Mr. William B. Marcussen described the field laboratory used in making the tests and Dr. M. J. Rosenau gave the results of the bacteriological tests insofar as indications can be judged from that portion of the tabulations that have been completed. We are well aware of the fact, Dr. Rosenau said, that under laboratory conditions a temperature of 140 degrees Farenheit for 30 minutes is sufficient to kill the pathogenic organism found in milk. The whole question depends on whether or not the organism contained in the milk is heated to the required temperature for the designated period of time. No indications to date have been found that give any cause for requirements other than 145 degrees Farenheit for 30 minutes. This appears to furnish a reasonable margin of safety. The value of this study appears to lie in the careful valuation of various types of machines and the determination of the exact reliance can be placed on the time and temperature readings as indicative of the conditions to which the contained bacteria have been subjected.

Laboratory Section

The most important papers presented before the laboratory section, Dr. B. L. Arms of Jacksonville, chairman, were a report by the reference committee on standard methods for the examination of milk, Prof. Robert S. Breed of Geneva, N. Y., chairman, and a presentation by Dr. W. H. Park and his associates of the important steps recently taken in the laboratories of the New York City Department of Health in the improvement of the toxin-antitoxin mixtures for diphtheria immunization. Both these papers will be discussed in the December issue of THE NATION'S HEALTH. Other papers dealt with the bacteriostatic action of certain dyes on pneumococci and streptococci, with serum lysins, with standardization of cell suspensions, with certain puzzling problems of typhoid agglutination, with laboratory tests for syphilis, with the viability of colon bacilli in water, and the need for standardizing the position and qualifications of the laboratory technician.

Vital Statistics

The section on Vital Statistics opened with a plea by Dr. W. H. Frost for the careful and scholarly study of epidemiological data by health department officials since the health department alone has at its disposal all the data necessary for studies of this kind. Dr. Haven Emerson defined epidemiology as "the study of diseases as they occur in groups" and cited the determination and the creation of specific immunity, the detection of carriers, the abandonment of gaseous fumigation, the shortening of isolation periods, and the campaigns against insect hosts as practical applications of advancing knowledge in epidemiology. Dr. E. C. Levy described some particularly helpful practical devices in use in Richmond for obtaining and analyzing epidemiological data. E. S. Mcphail, at a later session, gave a historical account of the development of statistical procedures in Canada which gradually have achieved their present status of fair completeness and sound scientific value. F. L. Hoffman discussed the mortality statistics of South American countries, pointing out that there, as with us, the respiratory diseases and the diseases of infancy are of supreme importance. O. R. Eichel emphasized the need for improved birth registration and particularly for better data in regard to still-births. Prof. Raymond Pearl urged the need for caution in statistical evaluation of public health procedures; G. T. Palmer presented a plea for continued study of public health climatology under a central organization affiliated with the National Research Council.

Langdon Pearse, sanitary engineer of the Sanitary District of Chicago, gave a progress report of the special

committee on sludge disposal at the first session of the section on sanitary engineering. The report dealt largely with a statistical summary of the means of disposal in use in cities of over 25,000 population. In the discussion that followed the presentation of the report, Mr. T. C. Hatton of Milwaukee told of some interesting experiments that had been carried on with the cooperation of the State Department of Agriculture and with the advice of the Federal Department. Growing tests of various crops in various kinds of soils were carried on, using sludge and other fertilizing material. The detailed results are not yet available but visual examination of the crops while in the field showed practically no difference in the effect of the fertilizers used. Those in charge of the experiment feel that the greatest possibility for the use of activated sludge is in fertilizing lawn grass in the city park systems.

Sanitary Engineering

At a later session Mr. Pearse presented a paper on "Typhoid Fever and the Water Supply and Sewage Conditions around the Great Lakes." A great variation in typhoid death rates is found in the cities of the Great Lakes Basin, one small city in Michigan having a rate of 98 per hundred thousand. There are few sewage plants around the lakes but considerably more water purification plants. Of these Toronto is the only one of any size that has a slow sand filter. The use of cross connections and dual water supplies in many of the steel mills of the Calumet region creates an interesting problem from the fact that sewage is so rarely treated in this locality.

George W. Fuller described the controversy which has arisen at Lima, Ohio, in regard to the Landreth "direct oxidation" process of sewage treatment, a subject discussed more fully in our editorial column. M. Z. Bair urged the importance of broadly conceived *mosquito* control rather than malaria control, and reference was made in the discussion to the fact that one hundred thousand cases of dengue fever have occurred in Florida during the past year. George W. Simons, Jr. discussed the methods employed in sterilizing suits and towels at public bathing places, and a paper by D. D. Kimball presented an abstract of the forthcoming report of the N. Y. State Commission on Ventilation which will be more fully treated in our December issue.

The proceedings of the Industrial Hygiene section are reviewed elsewhere in this issue.

The remarks of the chairman, R. E. Doolittle, had to do with certain defects in the law which make supervision inadequate in the manufacture, sale, and labelling of drug products and medical preparations, a serious defect, since on the purity, strength, and potency of medicines, the success of treatment must depend, not to mention the protection necessary against fraudulent preparations and exaggerated claims. Local enforcement of minimum standards fails because of lack of personnel or funds and the Federal law has no jurisdiction on products made and sold within the confines of a single state.

Glandular Therapy

Dr. Louis Klein gave a conservative and very thoughtful presentation of the thesis upon which glandular therapy is based—that of a specific hormone and the possibility of preserving this characteristic reaction in the pharmaceutical preparation. In most cases this expectation is not justified. Certainly exaggerated claims are current in this field, particularly in poster advertising which leads to the indiscriminate sale and self-administration of glandular products to a degree that properly constitutes a public health problem.

Lay inquiry has been immensely stimulated by the fact that some of the most spectacular achievements in medicine have been made in this field. It is a sorry fact that the indiscriminate use of these products is not confined to the laity. Hence the need of educating even the professional in the very definite limits of its application. The most recent achievement in the field, according to Dr. Klein, is the possibility that a specific for diabetes has been discovered by Drs. Bunting and West, in Toronto. This product has met all laboratory tests but is not yet on the market.

J. M. Doran discussed the dangers to the public health from "moonshine" whiskeys containing aldehydes and other toxic products.

Prof. H. H. Mitchell of the University of Illinois presented an admirable review of current knowledge in regard to the place of proteins in the diet, the difference in their digestibility and in their utilization within the body. He favored a fairly free use of protein foods except in hot weather. A report of Prof. H. C. Sherman of Columbia furnished an equally valuable summary of the present status of our knowledge in regard to vitamins.

In the section on Child Hygiene Dr. Florence L. McKay outlined the admirable New York State program for maternity and infant welfare. The policy of the state is against subsidies for local work but the state has organized a staff of regional consultants on obstetrics who give lectures at medical meetings, has created special machinery for training public health nurses in maternity and infant work, is prepared to conduct local surveys, and to furnish temporary pre-natal consultation and nursing service. Dr. H. J. Gerstenberger discussed the theoretical problems of infant feeding and described the excellent results obtained by the use of dried modified milk prepared on a large scale. Prof. A. L. Gesell urged the importance of adding a mental hygiene service to the children's dispensary, since in the pre-school period the main mental structure of the child is accomplished. Sensory-motor defectives and conduct defectives, as well as intelligence defectives should be detected and treated at this time.

Dr. Julius Levy cited figures obtained for five to ten cities and in more detail by counties in New Jersey which indicate that high mortality cannot be attributed to the service of midwives. Even in primaparas, and after eliminating abortions and miscarriages, the doctors and hospitals are charged with more deaths than the midwives. Partial explanation of the more favorable rate for midwives Levy found in the fact that they serve racial stocks that are sturdier and less susceptible to infection. Dr. Dunham urged the separation from the great group of malnourished children of the undernourished child previously exposed to tuberculosis, and the recognition of a distinct entity "potentially tuberculous" for consistent preventive treatment.

Particularly active interest was aroused by Dr. M. E. Champion's warning against the extension of child hygiene work in ways that may inhibit local initiative, antagonize the medical profession, or pauperize the individual. The fear which he expressed that clinic and nursing services under public auspices are tending to overstep an absolutely sharp line which he holds should be drawn between preventive and curative medicine, a view very generally held in Massachusetts at the present time, was vigorously combated by C. J. Hastings, L. I. Dublin, and others, Dr. Dublin pointing out that we do not pauperize a community by giving it a pure water supply or by com-

pelling vaccination and that making people well is the antithesis of pauperism. Dr. Champion's emphasis on the advantage of beginning public health nursing before clinics are established, and the importance of administering nutrition clinics so that they teach dietary habits and do not merely feed children at reduced rates, received more general support.

Public Health Nursing

For the first time public health nursing has had a Provisional Section of its own at the American Public Health Association meeting, and under the chairmanship of Miss Elizabeth Fox, the debut was a most promising one. Miss Margaret R. Burkhardt presented a summary of the chapter of the report of the Committee on Municipal Health Department Practise, dealing with Public Health nursing, indicating that the large cities of the United States have at present only about one-third of the necessary quota of fifty public health nurses per 100,000 population. Two types of nursing are at present most common, the specialized instructive service of the health department and the generalized service of private organization combining instruction with bedside care. The committee holds that a combined generalized service under municipal auspices, such as is found in half a dozen cities, is the ideal form of organization and that whether the nursing service of the health department be specialized or generalized it should be organized under a single administrative head who should herself be a nurse. Miss Elizabeth W. Holt described the encouraging progress made at Dayton along the line of the coordination of public and private agencies in a generalized service; and Miss Mary Laird emphasized the importance of follow-up work in the home.

Health Education and Publicity

A second provisional section on health education and publicity opened its sessions with a "Clinic on Printed Matter," a critical examination of sample leaflets, circulars, and booklets submitted by various health agencies for the purpose. It was pointed out that much material of this kind failed because it is neither first class educational matter nor frank advertising matter. Getting anything across with the public depends on a simple, direct, and pulling statement of the subject, made with the realization that the attention must be caught instantly and that all must be said; that it cannot be assumed that the person addressed has any advance knowledge of the subject. The importance of a concise journalistic "lead" in the opening paragraph is not generally appreciated by the compilers of these pamphlets, and particularly in the matter of titles, the main point of the argument should be featured.

Technical criticism on text matter was offered by a Cleveland business man, William Feather, and on art and general mechanical make-up by Henry Turner Bailey, Director of the Cleveland School of Art. Mr. Feather criticised many of the exhibited pamphlets as to methods of statement and particularly overstatement with consequent crowding of text pages. Mr. Bailey urged the wisdom of referring technical matters to technical men.

The moving picture was generally conceded to be the most popular and most effective means of health education, its limitation being marked by a dearth of suitable subjects and weak execution. Mr. Clark of the National Health Council reported progress toward getting talented workers in this field and toward centralizing the production of health films. Dr. Kleinschmidt exhibited excellent models and cues for health education based on objective methods. It was emphasized in the discussion that health films will be better when they become commercially profitable. At least one firm is on the look-out for real scenarios on health subjects and at least one ambitious health film has been written commercially of late.

At the closing session of this section the problems of newspaper publicity were discussed by Marjorie Delavan of the Michigan State Department of Health, Charles Freiburger of the Detroit Department, Dr. J. N. Hurty of Indiana, Erie C. Hopwood, editor of the Cleveland Plain Dealer, and Dr. W. A. Evans of Chicago. Such critical analyses by health promoters of their own methods is a most hopeful sign of the times.

Social Hygiene Conference

THE American Social Hygiene Association held its annual conference at Hotel Statler, Cleveland, immediately following the meeting of the American Public Health Association, October 19, 20, and, as usual, attracted a widely representative gathering from all parts of the country.

Dr. William F. Snow, general director of the American Social Hygiene Association. Dr. Snow received the degrees of A.B., A.M., and M.D. from Stanford University. He is treasurer of the National Health Council and chairman of the Common Service committee. During the war he was a lieutenant colonel in the Medical Corps in charge of Venereal Disease Control.

Dr. W. F. Snow introduced Dr. Edward L. Keyes, Jr. as chairman of the opening session and, after a tribute to Prince Morrow as the father of the organized social hygiene movement, Dr. Keyes reviewed the triumphs of the "American idea" in the control of venereal disease in military life during the war. Dr. Haven Emerson reviewed the progress which has been made in Cleveland in carrying out the program indicated by the health survey of three years ago and pointed out that in the development of machinery for dealing with tuberculosis and venereal disease hoped for advances had not been made.

The growth of the liberal attitude on the part of the medical profession was most encouragingly illustrated, however, by a recent resolution of the public health committee of the Cleveland Academy of Medicine endorsing the free clinic treatment of patients in a contagious stage of venereal disease without regard to economic considerations. The importance of supplementing such negative measures directed against venereal disease by positive measures contributing to healthy sex relations in the widest sense was a key-note of the meeting particularly emphasized by Dr. Benjamin C. Gruenberg whose book on "High Schools and Sex Education," recently published by the United States Public Health Service, constitutes perhaps the most important

contribution yet made to the complex problem of sex education.

A later session dealt with protective social measures. Participating were Mrs. D. S. Bachman of the Ohio League of Women Voters, Miss Sabina Marshall and Mrs. E. R. Wembridge of the Women's Protective Association, Dr. Valeria H. Parker of the Woman's Christian Temperance Union, and Mrs. Ann Webster of the National League of Women Voters. The importance of the problems of mental hygiene and the need for standardizing and improving machinery and personnel in protective work were emphasized by most of the speakers. The National League of Women Voters has placed to the fore of its program the task of obtaining legislation for continuing the work of the Inter-Departmental Hygiene Board; and during the present intermission of this work Dr. Parker and Mrs. Falconer, acting jointly for the American Social Hygiene Association and the Department of Social Morality of the W. C. T. U., are prepared to furnish counsel in regard to procedures and personnel. The demand for trained policewomen and clinic workers, according to Dr. Parker, greatly exceeds the supply. Dr. Parker gave the welcome news that the last segregated district officially recognized in any large city, at Reno, Nev., will be closed November 1.

A peculiarly significant feature of the meeting was the paper by Dr. Katherine B. Davis of the Bureau of Social Hygiene of New York on "Unsettled Questions in the Social Hygiene Field." Dr. Davis pointed out that many of our most fundamental problems are unsolved. We do not know what constitutes a normal sex life in the broadest sense. There are some who even doubt whether the compatibility of continance with thoroughly normal mental life may be considered certain. The Bureau of Social Hygiene was established for research in this complex field. It is at present analyzing the results of a confidential questionnaire returned by over one thousand married women in regard to their sex life which promises to yield results of the highest value and a similar questionnaire will shortly be sent out to unmarried women. The establishment of a National Committee on sex research under the National Research Council will greatly aid in stabilizing investigations along such lines.

Under the somewhat unappetizing title of an "educational luncheon," R. E. Lewis of the Cleveland Y. M. C. A. presided over a discussion of the work of the Cincinnati Social Hygiene Society by E. F. Van Buskirk and a discussion of the Community Plan by Dr. M. J. Exner of the American Social Hygiene Association, and P. B. Williams of the Community Committee of Toledo.

The work in Cincinnati includes the education of mothers by lectures to mother's clubs, the circulation of loan libraries, lectures to Parent-Teachers Associations, the stimulation in many ways of sex education in the common schools and normal schools; the education of the general public by talks to Y. M. C. A., Rotary Club, church, boy and girl scouts, and industrial groups and by the circulation of literature.

Is Community Problem

Dr. Exner emphasized the fact that Social Hygiene is a community problem not to be solved by any specialized group. After a conference of representative community leaders, a community committee should be organized to coordinate a systematic plan for educating the adults of the community. In discussion the need for frank treatment of sex problems in school texts on physiology and the importance of recreational facilities were emphasized.

The final session, under the chairmanship of Dr. William Keller of the the Cincinnati Social Hygiene Association, was devoted to a consideration of the work of voluntary and official agencies. The functions of the voluntary agencies were discussed by B. C. Roloff of Illinois, who pleaded for a flexible program adapted to local conditions and personalities, the surveying of treatment facilities; educational work in industry and with the Knights of Columbus being among the important tasks in Chicago; and by Dr. Rachelle Yarros of the General Federation of Women's Clubs who brought an inspiring report of the progress of social hygiene in England and France. Dr. J. S. Lawrence of the New York State Department of Health and Dr. J. G. Royce of the Indiana Department of Health outlined the rôle of the state. Dr. W. F. Snow summed up the significance of the meeting in its relation to the general program of the American Social Hygiene Association.

Many health films were shown during the conference. The new dramatization of the fall of the death rate under pressure of science and administration, the Health Twins at Work, being received with the most cordial appreciation.

The Detection of Spoiled Canned Food

Suggestions to dealers and consumers in the purchase of canned goods are set forth by Dr. Charles Thom, Bureau of Chemistry, U. S. Department of Agriculture, in the *Cincinnati Sanitary Bulletin.* The dealer is advised (1) to inspect every container when the case is opened; (2) not to accept or sell any can which shows a "swell," "springer," "flipper" or "leaker;" in glass, to examine the cover and the seam and inspect the contents for sign of spoilage; (3) to reject the lot if it shows many swells; not to take the responsibility of sorting a bad lot of cans; (4) to demand a well-exhausted pack, every can showing good vacuum with clean and bright metal.

The consumer should in buying reject any can in which both ends are not flat or do not curve slightly inwards; in which the end bulges, snaps back when pressed, or feels loose. In glass, the consumer should see that the cover is firm, flat or concave, with seam, collar band and label, clean and free from all signs of leak. The contents should appear free from mold, disintegration, cloudiness or other abnormality and should show no discoloration.

If the following conditions are noted by the consumer when the can is opened a maximum of safety will be obtained: (1) suction inward; (2) no outrush of gas or spurt of liquid; (3) the odor should be characteristic of the product; (4) no trace of foreign or objectionable odor; (5) no disintegration, no mold or other abnormal appearance; (6) liquor enough to cover the food in most products; (7) the inside of the can should be clean and bright, or well lacquered, not extensively blackened or markedly corroded. If the food is spoiled, it should be destroyed. If after examination there is still doubt as to its condition, add half the volume of boiling water and boil thoroughly.

The Simmons College Catalog announcing courses for 1922-1923 includes a new two year pre-medical program which is arranged to meet the admission requirements of medical schools of the Class "A" rating adopted by the American Medical Association. This announcement will interest many women who are planning to go into medicine as a profession as the required arrangement of courses is not ordinarily possible in women's colleges.

Hygienic Measures of the Southern Pacific

Cleanliness and Rigid Inspection Protect the Patron of these Lines

By J. H. DYER, General Manager, Southern Pacific Company, (Pacific System), San Francisco, Calif.

SOUTHERN Pacific Company has always been a leader in efforts to increase the safety of the traveling public, and these efforts, crowned by the winning of the E. H. Harriman Memorial Medal in 1914, under conditions submitted by the American Museum of Safety, naturally include complete sanitary and hygienic measures to safeguard the health of the company's patrons. The United States Sanitary Code governs the carriers as to sanitary and hygienic measures but the Southern Pacific observes the spirit as well as the letter of the law and constantly seeks to improve its work along these lines, suggestions promoting this result being received with the same eagerness as suggestions for increasing safety, improving service, or operating methods.

In following out the definite regulations of the government, both federal and state, Southern Pacific employees have their own rule of thumb guide—"keep things clean"—to assist them. It is this spirit which finds expression in the appearance of the right of way, buildings, grounds, and equipment. Section foremen are as jealous of the appearance of their sections as a housewife of the spotless condition of her kitchen.

The care taken by the Southern Pacific Company in sanitary and hygienic measures, matters involving countless details and extending into all branches of the service, is well demonstrated by the provisions for supplying pure drinking water to patrons. In handling drinking water in the company's passenger equipment, the greatest care is taken to keep the water clean and uncontaminated. It was formerly the practice to extend the water tanks through the roof of the car, the ice and water being placed in one receptacle from the roof. To obviate any danger of dirt from the roof obtaining access to the tanks, and of the drinking water becoming contaminated with impurities from the ice, the Southern Pacific Company has improved the water containers to eliminate these possibilities. Tanks are now used which have a separate compartment for the ice, so that it does not come in contact with the water. Automatic drinking fountains of the bubbling type have been installed at all important stations and on ferry steamers. The water in these fountains passes through coils of pipe which are thoroughly iced.

Employees who ice and water the cars, in addition to being thoroughly supervised in matters of cleanliness, are required to wear white duck uniforms and caps, and white rubber gloves while performing these duties. These uniforms are laundered and kept serviceable at the expense of the company. The men are required to change them frequently and to present a neat appearance at all times.

The ice, while being transported to cars in carts, is kept covered with clean white canvas. These carts, and water and ice tanks, are steam cleaned and sterilized at frequent intervals. Terminal yards are provided with steam tables having pipes which discharge live steam upwards. In sterilizing the containers they are inverted over the pipes and the live steam turned on. Each cooler is sterilzed every week and a record is kept in the car of the last date of cleaning and steaming. All water and ice used for drinking purposes at stations and on trains operated by the Southern Pacific Company are examined by the health authorities and a certificate is furnished the company at regular intervals indicating that they are entirely satisfactory for drinking purposes. Most of the ice used is made from distilled water.

Passenger trains and stations in the arid districts are supplied with water, carefully conveyed in thoroughly sterilized twenty-gallon cans, from artesian wells. The water from these wells is known for its purity and refreshing qualities.

Advance steps have been taken in industrial hygiene and sanitation by the Southern Pacific in its commissary department. A rigorous procedure is followed to keep the cars spotlessly clean, to keep the food fresh in its original state, and to obtain only the best supplies from the most reputable sources.

Before going out on a run, the dining car, like other cars, is given a thorough cleaning by the car cleaners, every particle of dust being removed, the windows polished, and the

In order to insure that the drinking water is uncontaminated, the water containers are sterilized with live steam. The ice is kept in a separate compartment and does not come in contact with the water.

Men engaged in the work of icing cars wear white duck uniforms and gloves. The ice carts are sterilized with live steam frequently and the ice is kept covered with clean white canvas.

walls rubbed down. At the end of each run all utensils are taken from the car to the main commissary and there placed in large steam chests and live steam turned on until they are thoroughly sterilized.

The dining cars and restaurants are closely watched by the department's inspectors. The dining car crews expect to be closely watched and are always prepared. Crews remain intact for long periods and the inspection is something of a game between the crews and the inspectors, as any old soldier who is careful to keep the heels and backs of his shoes well polished and all his pockets buttoned will understand. The cars are always inspected on leaving a terminal and on arrival at destinations, and usually at least once or twice enroute.

There are tricks of the trade in this inspection. The inspector can look at the inside of the metal caps of the salt shakers and never find any verdegris; he can unscrew the caps from the ketchup bottles, or look into the spouts of the coffee pots and find them clean and shining; he can rub his finger along the shelves of the chill boxes, top or bottom, and always find them spotless. The table tops and drainboards are scrubbed white. It is these little indications that show the importance attached to cleanliness in dining car operation.

The commissary department men through years of experience have learned the best methods for keeping perishable commodities in first class condition. An instance of care in this regard is the packing of fish. Fish is not carried in a chill box, but a heavy packing of ice, first being wrapped in freshly laundered linen so that it does not come in contact with the ice itself.

It is a strict rule that all linen must be spotless. On a three-day run a dining car is stocked with over 2,000 pieces of linen, including 220 tablecloths, 1,000 napkins and 250 doilies, besides waiters' coats and aprons. The waiters' coats are laundered free of charge at the company's laundry at Oakland, Calif. As a sanitary measure, the napkins as they come from the iron are folded and placed in paper cartons so that they come straight from the laundry to the passenger untouched.

The care used in obtaining food supplies is shown in the efforts made to secure the best milk and cream. Milk and cream used by the company are tested each week by M. E. Jaffa, Professor of Nutrition of the University of California. The butter fat content is higher than the standard required by the various states. The department thoroughly investigates the sources of milk supply before making contracts, and the milk and cream comes from the finest dairy herds in the West. One of the herds supplying the company's dining cars is composed of registered Guernsey stock, many of the animals having been imported from abroad. The milk is bottled and sealed at the dairies and is not uncapped until placed on the tables. Cream is received in one gallon air tight cans which are non-refillable, and which are sterilized at the dairies before initial filling.

All garbage and refuse are kept in covered containers in a low temperature refrigerator box built especially for the purpose. The elimination of flies receives the most careful attention.

In the commissaries there are ample cold storage accommodations and

Carpets, rugs, aisle strips, mats, cushions, hassocks, and mattresses are cleaned either with compressed air or by vacuum system.

An attachment to the locomotive tender used in sprinkling the roadbed with water keeps down the dust. Many miles of roadbed are oiled for the same purpose and the locomotives of this line burn oil thus eliminating in great measure dust and cinders.

all supplies are kept under refrigeration.

The Southern Pacific Company operates a school for cooks and waiters, and sanitary measures and the careful handling of food are emphasized in the course of instruction. Cooks and waiters are required to pass rigid physical examinations.

When bread is received from the bakers it is wrapped in a paraffin envelope. A special make of butter is contracted for. It is double wrapped in paraffin paper and placed in heavy cardboard cartons. It is cut by a machine and from the creamery to the table is never touched by hand.

All cars used in the transportation of passengers are thoroughly renovated and cleaned at the end of each trip and are fumigated at frequent intervals. Carpets, rugs, aisle strips, mats, cushions, hassocks, and mattresses are cleaned with either compressed air or vacuum system. Every effort is made to keep the cars in a clean and healthful condition.

Disinfectants (carbolic acid and formaldehyd) are placed in all water used for mopping floors, cleaning around heater pipes, or seats. Cars are frequently swept out at stations enroute by men employed for that purpose in addition to work done by the porters during the journey.

The state boards of health of the various states served by Southern Pacific Lines cooperate with the company in the matter of train inspection, both as to sanitation and cleanliness, with a view to insuring greater protection and comfort to passengers. These boards report to the medical department of the company, which thereupon takes prompt action.

In the company's ferry service on San Francisco Bay, the same precautions are taken. Light cleaning is carried on all during the day and night during the runs, and after the boats are tied up for the night, the heavy cleaning commences. The main deck is then washed down with a large hose, lye and sand, the outside of the boat is washed down, all windows are cleaned, toilets scrubbed out with lye and water, with disinfectant added to the water, cuspidors given a thorough cleaning and sufficient disinfectant put in each cuspidor. During the day when the main deck is sprinkled, a sufficient amount of disinfectant is added to the water. The steamers are frequently fumigated. Toilets are cleaned, the paintwork scrubbed, and the bowls and urinals washed after every heavy trip. Steamers and large stations are provided with matrons and porters to look after the cleanliness of lavatories and to assist aged, infirm or sick passengers.

The California State Board of Health in its monthly Bulletin of August, 1921, ran an article under the heading "How the Southern Pacific Maintains the World's Cleanest Ferry Boats," showing in detail how the company keeps its vessels in a sanitary condition.

The Southern Pacific Company annually oils hundreds of miles of roadbed to prevent dust, particularly on its roadbed in arid regions, and to some extent where material composing the ballast is light or fine, or where it carries considerable dirt. A special oil sprinkling device is used for this purpose. A water sprinkling device has just been designed by a Southern Pacific official, and this is being used over several arid sections. Southern Pacific locomotives burn oil, thus eliminating coal dust and cinders.

Bacteriology of Dry-Cleaning Processes

The dry cleaning process, a stern necessity in the cities, and more and more relied upon for the rejuvenation of fabrics, has not until recently been investigated from the angle of its bactericidal effects; but during the early part of 1921 eleven of the most progressive firms of cleaners and dyers in the United States organized themselves for the purposes of research and endowed an industrial fellowship in the Mellon Institute of Industrial Research of the University of Pittsburgh, where technical investigation of processes was carried out.

A report just issued of an investigation into the bactericidal efficiency of the dry-cleaning process shows that as many as 90.1 per cent of the most hardy and resistant bacteria and 99.99 per cent of the less resistant bacteria were killed in the cleaning process. The destruction of organisms used in these tests, such as the very hardy hay bacillus (B. subtilis), which is widely distributed in air, water, and earth, indicates that pathogenic bacteria, such as the organisms causing tuberculosis, diphtheria or typhoid fever, would undoubtedly be destroyed.

In one of these tests the bacterial count was 2,700,000 per square inch of cloth before being dry-cleaned, and after the cleansing process the count was only two hundred per square inch. In another experiment the bacterial count was 1,200,000 per square inch, and the dry-cleaning process reduced the count to only five hundred.

Under average conditions the dry cleaning processes investigated would practically free a garment from bacteria. Many so-called cleaning establishments employing only the most superior methods, and established without adequate facilities, in cellars or back rooms, need to be inspected and rated according to their sanitary efficiency.

Community Movement and Health Activities

Great Potential Value to Health Work in Community Pride and Action

By IAGO GALDSTON, M.D., Industrial Secretary, New York Tuberculosis Association, New York City.

THE community council movement, some two years ago, at the height of its development promised to prove one of the best and most effective allies of community health activities. This article is written in an endeavor to demonstrate that it is in the interest of all social agencies aiming at the spread of health education to cooperate with those interested in, and to assist and stimulate the development of, community consciousness and organization.

To appreciate the significance of the community movement one needs first to survey our large metropolitan cities and to notice what extremely complicated and unwieldy organizations they are. When one considers New York, Chicago, Detroit, or any of the smaller cities, east or west of the Mississippi, one realizes that each is extremely heterogeneous in composition and complicated beyond unravelment in the various cross-currents of interests and customs that spring from the different groups of peoples that make up the population of each.

As organized at present, this heterogeneous mass of humanity has hardly any means for the intelligent expression of its total or individual interest, of its desires, or even of that *esprit de corps* that must of necessity spontaneously emanate from any group of convivial individuals. Save for the extremely unsatisfactory annual political expression along the relatively meaningless party lines, there is no provision for the individual in the community to express his opinion on, or to participate in, community function. Centralized administration gives little more than an unsatisfactory average result, and the individuality of the citizen is lost in the characterless composite of the average.

This is a microscopic view of the large cities. When, however, one makes a more searching study, one discovers that there is an inherent and spontaneous process of crystallization constantly going on within the community. Like elements seem to cohere, to congregate in certain sections, to participate in common in economic and social functions, and thereby to cast faint outlines of a community organization. The large mass which represents the city, when closely examined proves to be split into many small segments each representative of a small community. These segments are found to be organized around such common poles as race, religion, economic status, and political thought. This process of community crystalization upon examination is found to lack that definiteness and purposiveness which can come only with intelligent direction, and the communities so organized spring rather out of inherent necessity than out of conscious endeavor. Because of this, these community organizations are imperfect, exploit only the primitive instincts of the masses, and are essentially clannish in their spirit.

These groups are the basis for our future community organization. In a large measure, all that is necessary, in order to render these community organizations intelligent and motivated by the highest social interests, is for a group of individuals, who themselves appreciate the value of community organization, to act as the precipitating agents and to give early thought and voice to the community. In this way "man takes his fate out of the hands of destiny" and places his own intelligence and energy back of the blind and forceful efforts of social nature. The community when organized along well thought out plans, and on the basis of a clearly defined program allows for the development of the special character of each community and the harmonization of the same with the characters of the other communities. The clannish spirit can be overcome, and various communities can be brought in contact with one another through a central representative body, and through a series of oft repeated, wide community celebrations. Incidentally this process of community contact would prove an extremely effective means for the true Americanization of our foreign citizens; for that manner of Americanization which aims at the development of the American spirit without the loss of whatever is beautiful, cultural, and precious in the new citizen's native thought and custom.

In every community organized along the lines defined, it would prove a relatively easy task to impress upon its members their own responsibility in the matter of community health, and to instruct them in the ways in which they can discharge their individual and community obligations. In each case there would be a community pride as a basis for appeal and interest, and there would be a community machinery through which to put into execution whatever plans might be formulated for the improvement of individual and community health. Communities could be induced to compete among themselves for the improvement of health conditions. Community organizations ready to cope with any arising emergency could be developed and kept ready for service.

Cities, as organized today, are too clumsy for a ready manipulation in time of social emergency. But where a community is organized and the citizens of the community know their own resources, their hospitals, their clinics, their community physicians, their public schools, and their health centers, when an emergency appears no time needs to be lost nor efforts wasted in putting the community means at command to the best of uses. In the last great influenza and pneumonia epidemic, though the community organization in New York City was small, much effective work was done in securing medical and nursing help in the districts of the community councils. These councils, at their own expense, printed placards giving names, address and telephone numbers of central points in each community at which information could be secured relative to medical and nursing help. Arrangements were made at these centers for helping needy cases. Coal, food, and drugs were provided for those who were in need and in many other ways much was done to render the acuteness of the situation less sharp. Despite, however, the effective services rendered by the Community Councils the movement has suffered collapse and what remains bears inadequate witness to the movement's former size and momentum.

In seeking to account for the proc-

ess of disintegration suffered by the movement, many factors may be brought to mind. Chief among the causes stand out the following: (1) There were relatively few persons in executive positions in the individual community councils sufficiently well trained and having complete and thorough enough a concept of the basic aims of community movement, and of the most competent forms of organization through which such aims might be attained, to render possible a consistent development of the established councils. (2) The community movement, because of the war and its accompanying intensity of feeling and sentiment, suffered a mushroom growth, which at the end of the war, due to the complicated political situation arising out of the coming of peace, collapsed like a punctured balloon. But over and above these causes, perhaps, comes the fact, (3) that after having gone through the more or less interesting processes of organization, those in executive positions in the local community organizations *did not know what to do, or how to do it.*

The writer can remember one meeting in which certain of the leaders of our health work participated, and which was called with the specific aim of considering what Community Councils could do along the lines of health conservation. The organization was there, but was suffering physical and spiritual atrophy due to lack of function. Nothing came out of that meeting and yet, perhaps, had the health organizations then represented taken a more active interest in the community council movement, had they taxed its resources in the execution of some definite plan of health work that would have at the same time put into play the specific machinery of the various health organizations and the large masses of citizenry included in the councils, both the councils and the health organizations would today be much the better off for the efforts, and the major portion of the energy invested in the councils would not have gone to waste.

The very evident deduction prompted by all the foregoing is that we have in most of our cities the basis for a real and vigorous community movement and that the community movement is necessary for the bringing to the surface and into operation all that is valuable and precious in the various groups that make up our cities. Most health work, and especially that part which deals with health education, can best and most effectively be carried on along the lines of the community. And from all this it follows that it were wise for the various health agencies to stimulate and promote the community organizations in cooperation with those more especially interested in the development of the community councils. Profit would accrue to all concerned, and most of all to the community itself.

At first it may seem as if the health organizations, in the execution of this plan, would need to go far afield, but upon closer examination it will be seen that this is more a matter of appearance than of reality. It would take but little additional effort on the part of a health center to draw about itself and incorporate into its own functions the other activities of the community. In fact, the effective services of the health center would undoubtedly be increased many fold when associating with the other leading agencies of the community. It takes a relatively small group, and but little effort on the part of this group, to organize the community. The health center, the leading churches and synagogues, the county or district medical society, the principals and teachers of the community's schools, the leading business men, real estate owners, parent associations, etc., all of these coming together and working along the lines of their community interests can quickly develop a competent group of community leaders, whose united efforts cannot but result in developing a deep social consciousness in the community. The community organization formed, the various health agencies can then exploit its machinery in the interest of better health and longer life.

This scheme deals exclusively with the residential community, but its major truths are equally valid for the industrial community. Here the methods of organization may differ slightly but again the necessity for community work is as deep as elsewhere and the agencies of health may again play leading and prominent parts in the processes of community organization.

Detroit's School Health Plan

DETROIT has introduced an innovation in school medical inspection. It has removed this service from the hands of part-time physicians in the employ of the school board and placed it under the supervision of the city department of health.

The new Detroit plan insures thorough physicial supervision for all its school children. The teachers make the preliminary examinations of the pupils, school medical inspectors checking only those referred to them. Under this system vaccination and diphtheria immunization are in the hands of four specialists; disease diagnosis is in charge of eight men assigned to districts. Suspicious cases of disease are referred by nurses to the main office, and thence they are given out to the proper district physician. Examinations of physical defects are carried out by twelve men who work in teams of three, each team being assigned to a district. Diagnosticians fit their work in with their private work, and vaccinators and physical examiners give half time, from 8:30 to 11:30 each day.

In order to make the examinations uniform, a graded scale is used in marking defects. Each physician is assigned a list of defects to look for. One observes mouth breathing, tonsils, teeth, palate, cervical glands and thyroid, another tests vision and hearing, and a third observes heart, lungs, skin, anemia, orthopedic defects, and phimosis. As the children pass by, the physicians call off their findings in terms of the scale and the nurse or teacher makes entries on the children's cards. These details are forwarded to the central office, recommendation slips are made out to the parents, and the school nurse makes a record of all defects to be followed. of 4,056 underweight children examined in 80 schools, 47 per cent showed either enlarged or infected tonsils; 19 per cent had defective teeth.

Subsequent examination by physicians of the 2,500 children examined by school teachers showed that as a rule the teacher reported more defects than the physician. If this plan is perfected, it would be the policy to have all children examined by the teachers at the opening of school. Medical teams would then inspect only those children designated for attention and recommendation slips for treatment would be sent to the parents. It is maintained that the teachers are capable of grading thyroid, vision, hearing, mouth-breathing, tonsils, skin, anemia, teeth, palate, cervical glands and orthopedic defects, though they cannot examine for lung and heart affections.

"The system is a marked step forward in this field of public health," states George T. Palmer, epidemiolo-

gist, Detroit Department of Health in the *American Journal of Public Health*. "Teachers would become intimately acquainted with the physical capabilities of their charges as well as with their mental capacities. The extension of this work would include the introduction of courses in physical examination into the normal and teachers' training schools."

The League Health Committee

THE fourth session of the Health Committee of the League of Nations, the last to be held before the third Assembly, met in Geneva from August 14 to 21. A review of some of the more important matters considered at the recent session gives an indication of the past activities and the present position of this provisional health organization at the close of its first year of existence.

Consideration was given to such matters as the arrangement with the Rockefeller Foundation, the interchange of sanitary personnel, the recommendations of the Warsaw Health Conference, the report of the epidemiological situation in the Far East, and reports on the work of the Health Organization since last May and of the Epidemic Commission during the last year. Arrangements have been practically concluded by which the International Health Board is to finance epidemiological investigations and intelligence for a period of five years and the interchange of sanitary staff for three years. Funds will be available for the former project to the extent of $150,000 and for the latter $180,000. Provisions were made for the first interchange of sanitary staff in October. One public health officer from Bulgaria, two from Czechoslovakia, two from Belgium, two from the Serb-Croat-Slovene State, five from Italy, five from Soviet Russia and the Ukraine, and five from Poland will be given a two weeks' course at Brussels followed by two months' observation of the working of various practical public health systems. This initial experiment in providing international experience in health work should reveal many fruitful possibilities.

The Health Organization was referred to as mediator in the sanitary conventions being concluded between the states of East and Central Europe and was designated by the All European Warsaw Health Conference as the executor of the latter's plans for an anti-epidemic campaign in East Europe. The Health Organization, which has been steadily at work in Poland, has formulated plans for extending its activities northward into Latvia and eastward into Western Russia and the Ukraine. The Committee has given strong support to these plans in a resolution to the Council urging the need of additional funds for this purpose since Russia is still ravaged by epidemics and great numbers of refugees and repatriated persons are still crossing the frontier into the border states.

A revised draft of Parts II, III, and IV of the International Sanitary Convention text has been prepared by a Mixed Commission of Inquiry sent by the Health Committee and the Office International d'Hygiène Publique to investigate the working of sanitary administration in the Near East.

The committee decided in principle upon sending a small commission of inquiry to the Far East to study the prevalence of plague and cholera in seaports and practical means of preventing their transmission. Approval was also given to the appointment of three experts for a study of sleeping sickness and tuberculosis in equatorial Africa and to aid the Mandates Commission in drawing up questionnaires on these subjects.

In the furtherance of international organization, the Health Organization has absorbed the Epidemic Commission and established cooperation with the Office International d'Hygiène Publique, and is collaborating with the Opium Commissions, the League Mandates, and the International Labour Office.

The committee closed its session by deciding to coopt a German member and to meet again in plenary session on January 4, when it is hoped that Dr. Chaga (Brazilian) and Dr. Josephine Baker (American) can also be present.

An American official investigation has disclosed the fact that about 90 per cent of the inhabitants of the Philippines have the hookworm infection, with the result that an educational and preventive campaign will be instituted that is expected greatly to raise the vitality of the people of the islands.

The Official survey was conducted by Dr. Frank G. Haughwout, Dr. Leach of the International Health Board, and Major James E. Ash of the American Army Medical Corps, who conducted a series of experiments, the most significant of which were upon groups of Bilibid prisoners. In the three groups of these prisoners classified by the nature of their former occupations, the lowest percentage of hookworm infection was 54 and the highest 100.

It is expected that the stamping out of the hookworm infection will so improve the general physical condition of Filipinoes that the number of malaria and tuberculosis cases will be materially lessened and the vitality and stamina of the race improved.

The Little Enemies of Man Still Uncontrolled

It is only within the last few years that man has learned what his greatest enemies are, says *The Scientific Monthly*, and he has not yet found adequate weapons against them. Early in the history of the human race man learned how to conquer the mastodon, but he has yet to learn how to master the microbe. Whales and elephants are now almost extinct, but mice and flies still increase and multiply, and bacteria, the smallest and most dangerous of all, constantly find new ways of attacking us. The explorer in tropical jungles used to fear the lions, tigers and pythons; now he protects himself most carefully against the mosquitoes and tsetse. Mars has afflicted the human race less than Beelzebub.

Although we theoretically accept the conclusion of science that a man's foes are those of his own household, we are not yet aroused to the necessity of waging war in earnest against them. We have a secretary of navy and we give him millions for defense, but we have no secretary of sanitation, though that is a more necessary office. It is quite improbable that any American will be killed by an invading army this year, but our land is invaded by millions of mosquitoes and flies armed with deadly weapons and certain to slaughter thousands. Years of study and experimentation will be necessary before we learn how to fight our insect foes, but already enough has been done to show what can be accomplished if we go about it in the right way. Many of the sanitary measures of the past we now know to be crude, clumsy and misdirected, yet they are fixed in the popular mind and remain on our statute books. People still talk about the dangers of miasma and sewer gas, and think a deodorizer is a disinfectant.

A research fellowship of $1,000 for the study of orthopedics in relation to hygiene and physical education has been offered by Wellesley College.

Heart Disease as a Public Health Problem

By CARY EGGLESTON, M.D., Committee on Education, Association for the Prevention and Relief of Heart Disease, New York City.

THE prevention and relief of heart disease constitutes one of the major public health problems of today because (1) heart disease is the greatest single cause of death; (2) heart disease is very largely preventable; (3) heart disease causes prolonged suffering and incapacity on the part of affected individuals; (4) adequate medical, social, and industrial guidance is capable of preventing this suffering and incapacity to a very great extent; and (5) the physical handicaps, the curtailment of industrial capacity, the prolonged and frequently recurring need for hospital care, as well as the enormous loss of life which are caused by heart disease place a tremendous economic burden upon the community which can be greatly reduced by appropriate coordinated measures for prevention and relief.

Heart disease causes more deaths than either tuberculosis or cancer, being responsible for nearly one-eighth of the total deaths at all ages in the whole registration area of the United States, and for approximately one-fifth of the deaths from all causes in persons forty years of age and over. Not less than two hundred thousand persons die annually in the United States from disease of the heart, which means that there is one death from this cause every three minutes of the twenty-four hours. Not only does it rank first among all the causes of death, but heart disease cuts in half the life-span of its victims, and it is to be remembered that heart disease is a disease of youth and early adult life.

A Secondary Disease

Accurate statistics as to the frequency of occurrence of organic heart disease in the general population are not available, but a conservative estimate based upon the examination of different large groups of persons indicates that there are between two and four million people thus affected. Of the young men called in the draft 4 per cent were rejected for service because of heart disease, and 2 per cent of the applicants for life insurance are refused for the same cause. Definite disease of the heart has been found in 2 per cent of industrial workers, and from 1½ to 2 per cent of the children of school age are found to have serious heart defects. Finally, it has been conservatively estimated by Dr. Haven Emerson that between 1 and 2 per cent of the community at large are at any time in need of care and medical attention because of heart disease.

Heart disease, as the term is commonly used and as it is here employed, is not an entity like typhoid fever or tuberculosis. It is seldom, if ever, primary but occurs as a sequel or complication of some other disease. It embraces all of the organic affections of the heart itself, of its blood vessels, and of its lining and surrounding membranes. However, since the diseases of these several structures have in common most of their causes, their symptoms, and their end results, it is wholly justifiable to consider them as an entity and to give them a common name.

The Problem Is Diverse

The control of heart disease presents a number of diverse problems and demands the cooperation of physicians and health workers in many different fields, as well as the education of the public in methods of prevention and in the need for early diagnosis. To accomplish this it is necessary to have some form of central coordinating organization, which fortunately already exists in the Association for the Prevention and Relief of Heart Disease, New York City. This Organization, founded in New York City seven years ago, has led to the formation of similar associations in other large cities, and all of these are now uniting in the establishment of a national organization so that the machinery for proper coordination of work is already at hand in an active and effective form.

Herein is presented a brief review of the methods of preventing heart disease and of reducing its economic drain upon the individual and the community. The prevention of heart disease demands an accurate and comprehensive knowledge of its causes. While there are still some gaps in our knowledge, they are not sufficient to prevent an effective beginning from being made while further comprehensive investigations of the many possible causes are being undertaken.[1] Rheumatism and syphilis are among the most frequent causes of heart disease, the former especially in early childhood and in youth, the latter in middle adult life. The less frequent causes of heart disease also include scarlet fever, diphtheria, typhoid fever, carious teeth, infected tonsils, and various cryptic foci of infection. Disease of the kidneys, senescence, the ill defined condition called arteriosclerosis, and toxic states such as that associated with thyroid disease occupy important but undetermined positions as causative factors.

General Measures Important

Nowhere, perhaps, is the dictum that disease control rests upon the general elevation of the health of all better exemplified than in the prevention of heart disease since it embraces the control of each of the causative factors mentioned. Rheumatism, scarlet fever, diphtheria, and infected tonsils are characteristically diseases of childhood and early youth and are the evident underlying causes of the vast majority of cases of heart disease in persons below the age of forty. Examinations of school children show that heart disease increases gradually as the ages of the children increase so that it is nearly twice as frequent above fourteen years of age as it is at eight. So far as these diseases are concerned, therefore, the control of heart disease through their prevention or prompt alleviation must begin in the first decade of life. It is not possible to enter into the details of the various methods of prevention of these several causative diseases, but it should be pointed out that the maintenance of good general hygiene and proper and sufficient food are measures of great importance. Periodic examinations of the children and the prompt isolation of all individuals presenting even slight attacks of fever or colds are measures of the greatest prophylactic value.

Chronic foci of cryptic infection, chronic dental caries, and infected tonsils should be attended to promptly and evidence shows that rheumatic fever and heart disease can be diminished in children by the early removal of diseased tonsils and adenoids.

1. An extensive statistical study of the causes of heart disease is now being made by the Association for the Prevention and Relief of Heart Disease, 325 East 57th Street, New York City. Blank information charts will be provided to any qualified person who is willing to cooperate.

Senescence, arteriosclerosis, and similar changes, often closely associated with occupational disease, can be delayed, or largely prevented, by periodic physical examinations and proper medical and occupational guidance. The war which is now being waged against the venereal diseases should bear fruit in the prevention of heart damage due to syphilis and, even if syphilis itself be not prevented, its early and adequate treatment will greatly reduce the frequency of syphilitic disease of the heart and blood vessels.

The desirability of periodic medical examinations has been mentioned, but its well nigh supreme importance as a preventive measure demands further emphasis. There is a growing appreciation of the need for an annual examination of adults, but it is not realized that the need is even greater in children. Among the latter group there should be a thorough examination not less than twice a year, especially when the child is in apparent health as many of the chronic infections are so insidious that they may not become manifest until irreparable damage has been done.

Heart disease is generally insidious in its development and does not usually produce symptoms which attract the victim's attention until it has progressed so far that the heart has begun to fail in its capacity to meet the demands thrown upon it. When this stage is reached much less can be accomplished toward the prolongation of life and the relief of later suffering than could have been done had the disease been discovered in its earliest stages. It is essential, therefore, that the public be educated as to the enormous value of the discovery of heart disease in its very incipiency, for when discovered then life may be greatly prolonged and suffering reduced to a minimum. Recognition of incipient heart disease is possible only by routine periodic medical examination, preferably with the aid of one trained in the field of heart disease, if any suspicious signs be found.

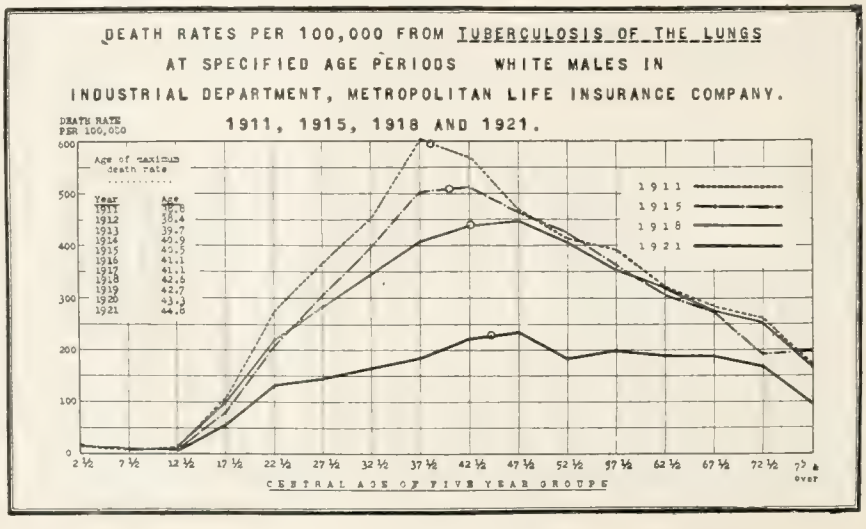
When heart disease is found to exist the measures to be employed for the prevention of its further development and of cardiac breakdown include the immediate and thorough removal of all discoverable foci of infection, the prevention of further infection, the maintenance of good nutrition, the provision for adequate sleep and rest, the improvement of the patient's general health and physical development, and often the guidance of the patient from an unsuitable into a suitable occupation. The patient should also be educated in the recognition of the first signs of slight cardiac breakdown that appropriate steps may be taken immediately to prevent further damage and to restore the heart's capacity.

When decompensation, or cardiac breakdown, has taken place restitution is usually possible, but the most careful guidance is required to prevent the early recurrence of decompensation. The accomplishment of this by appropriate treatment, convalescent care, and by the adoption of the measures suggested in the preceding paragraph often permits the patient's return to a productive and useful life, while its neglect is prone to lead to chronic invalidism.

It is to the accomplishment of all of these ends upon a large scale, and especially in that portion of the community which must have more or less financial help, that the efforts of the Association for the Prevention and Relief of Heart Disease are directed. To these ends the Association has been and is now gathering accurate information upon all phases of heart disease to advance the development and application of measures of prevention and relief. It is searching out and providing suitable occupations for persons with heart disease, and is providing vocational instruction for those who need it to secure a suitable occupation. It has promoted the establishment of many special dispensary classes for the care of heart disease, and has endeavored to improve the facilities for hospital and convalescent treatment. It is urging the provision of permanent institutional care for the diminishing group of hopelessly incapacitated cardiac patients. It is aiding in the provision for the school care of children with heart disease. Finally, it maintains a central bureau which serves as a clearing house for information relating to the prevention of heart disease and the care of cardiac patients. The constructive work is going forward through many channels, and it is confidently believed that as much can be accomplished in the reduction of sickness and premature death from heart disease as has been done in tuberculosis. Along with prevention through the rational control of predisposing contagions, conservation is effected through educating the individual; for physical and psychic stress is now fully recognized as causing much unnecessary waste of human life.

Phthisis Deathrate Decreases

THE change in the deathrate from pulmonary tuberculosis indicated by a chart recently published by the Metropolitan Life Insurance Company has a wide social significance. Not only has the death rate been reduced but the age at which death occurs has been advanced to a point where the father has fewer young children incapable of self-support. In 1911 the maximum deathrate occurred at age 38.8 years; by 1915 it had advanced to 40.5 years; in 1918 it was located at 42.6 years, and in 1921 at 44.8 years. This advancement in the age of death lessens the strain on public and private relief agencies and gives many thousands of children the benefit of home care which they would not have had if mortality conditions of ten years ago were in effect today.



American Child Hygiene Association Meeting

WITH a broad vision of the tasks of the future, the American Child Hygiene Association agreed without a dissenting vote on Friday, October 13, 1922, to the proposed plans for union with the Child Health Organization of America. This was, beyond all question, the most significant act that the association has taken since its foundation more than thirteen years ago. This consolidation of the two leading groups of workers that are interested in the health of the children of the country will allow a unanimity of purpose, prevent a duplication of effort, and permit a singleness of plan that will begin with pre-natal work for the mother and end only when maturity is attained.

Mr. Holmer Folks, chairman of the special committee that considered the proposed consolidation, presented the report of the committee at the annual business meeting which was held in Memorial Continental Hall, Washington, D. C. The committee, which had been considering the proposed change since its appointment last June by the president upon the recommendation of the trustees, found that the proposed consolidation was practical but that the details of the union must be worked out in practice. The control of activities is to be centered in the hands of the executive director and the direction of the policies of the new society is to be in charge of a board of trustees elected from the general membership. This change does not, however, imply as radical a change as might be inferred. The detailed activities are to be carried on by small groups within the new membership. Those groups that have in the past been interested in the health of the children of school age will continue that work. The Child Health Organization of America has valuable experience in this field and the Child Hygiene Association has accumulated a fund of experience in pre-natal infant and pre-school work. The new arrangement will make no fundamental change in the scope of health problems against which the efforts of each group are directed.

Hoover Reelected Head

In view of the association's reorganization President-elect Livingston Farrand declined to assume office at this time and Secretary Hoover was reelected to the presidency. The other officers include: Vice presidents Dr. Fred L. Adair of Minneapolis and Miss Mary Arnold of New York city; secretary, Dr. Richard M. Smith of Boston; and treasurer, Corcoran Thom of Washington. Dr. Philip Van Ingen is chairman of the executive committee. The membership of the executive committee and the board of trustees is made up of men and women of equal authority and experience. Miss Julia C. Lathrop was elected an honorary member of the association.

In his presidential address Herbert C. Hoover, after announcing the forthcoming consolidation of the Child Hygiene Association and the Child Health Organization of America, made public a gift to the new unit from the Commonwealth Fund of

Herbert C. Hoover, who was reelected president of the American Child Hygiene Association, at its annual meeting in Washington, October 13, when it voted to merge with the Child Health Organization of America.

$230,000 a year for a period of five years. This gift has been made for the purpose of financing demonstration programs in three American cities. It is proposed that one city shall be in the middle west, one in the far west, and one in the south and that each will receive the benefit of a $300,000 program of child health instruction and help. The knowledge derived from these demonstrations will be available for all America and the experience gained will be for the use of all agencies through the great unified clearing house and advisory agency that the new unit will provide.

"The ideal to which we should strive," Mr. Hoover said "is that there should be no child in America born under improper conditions, no child who does not live in hygienic surroundings, who ever suffers from under-nutrition, who does not have prompt and efficient medical attention and inspection, who does not receive primary instruction in the elements of hygiene and good health. It is the purpose of these associations to supplant ten policemen with one community nurse."

The speaker further stated that, while not directly embraced in the functions of the society, they aspired that every child should be free from deleterious labor, should participate in the great public school system, and have full participation in the joys of childhood. The past accomplishments in the field have been indicated by the fact that during the last four years infant mortality in the Birth Registration Area of the United States has dropped from 106 per thousand births to 78 in the present year. During this time the number of state bureaus devoted to child hygiene has increased from 28 to 46.

In continuing Secretary Hoover said, "the cause of children has no opposition with the American people except the opposition of ignorance." The object of the associations were defined as: First, that they stimulate appreciation of the service that can be done for children and the nation in the matter of health; second, that the enormous activity in America for the welfare of children and mothers shall be directed in a scientific manner and by scientifically trained men and women; third, that these applications of science shall reach every corner of the country and every child in it; fourth, that these efforts on behalf of children shall be built upon the solid rock of inspiring the local community to its responsibility, and not upon the shifting sands of over-centralization."

New Pediatrist Needed —Holt

After commenting on the significance of the new organization, Dr. L. Emmett Holt, president of the Child Health Organization of America, stated that a new type of pediatrist was needed, one who has been trained not simply in a knowledge of the diagnosis and treatment of the diseases to which childhood is liable, but one who in addition knows the normal child—the conditions of growth, the prin-

ciples of nutrition, practical dietetics, the essentials of school inspection—who has been trained also in child psychology, who knows the fundamentals of child hygiene, mental and physical development. He should at the same time have the organizing and directing ability to put a scientific knowledge of all these subjects to practical use in a community.

Sir Auckland Geddes, British Ambassador, was among the distinguished speakers at the first evening session. That child health is a problem of international importance, that no race stock long remains pure and that the foreign child of today may be the citizen of tomorrow, were points stressed. "In an age of immigration and emigration the child health of any land is a matter of moment to all," he stated. "If people could be made to realize that the devastation caused by war in child life is greater than that caused property, they would not permit their nation or other nations to draw the sword. "Vital interests," the speaker continued, "are not bounded by frontiers."

Miss Elizabeth Fox, president of the National Organization for Public Health Nursing, made a plea for better training for the nurses going into child health work. She deplored the lack of knowledge in fundamental sciences, mental hygiene and normal nutrition. She was of the opinion that some of these topics were of much more importance than the mass of detailed anatomical knowledge that was in many cases of little use to the nurse.

Delegates from twenty-eight states, the District of Columbia, Canada, and the Philippine Islands were in attendance. Several foreign governments including Belgium, Mexico, Columbia, Uraguay, Costa Rica, Italy, Switzerland, and Poland appointed representatives to the convention. Mrs. H. W. Farnam one of the Belgian representatives read the following cablegram:

> Many thousands of little boys and girls send you loving greetings and expressions of their gratitude for help given them in the darkest hours of the war by the Commission for the Relief of Belgium. Their gratitude distance and time can never dim.

Nutrition Section Meets

At the general session on the training in nutrition needed for child health workers the principal speakers were Miss Flora Rose, School of Home Economics of the New York State College of Agriculture, Miss Edan White of the Merrill-Palmer School of Detroit, and Miss Emma Dolfinger of the Child Health Organization of America, New York City.

Miss Dolfinger said that nutrition work had demonstrated its value in the public school program but doubt was still felt as to the most effective use that could be made of the nutrition worker's time and training. All three speakers emphasized the need of giving the nutrition worker more training in educational methods. It would also seem from the papers and discussion that there might be some question as to the adequacy of the training in fundamental sciences that the workers receive.

Dr. Richard M. Smith of Boston, Dr. Albert D. Schlink, medical director of the Day Nurseries in Cleveland, and Dr. Florence L. McKay presented papers at the session on the problem relating to the pre-school child. Dr. Smith said that the infants and the school children had a definitely worked out program while the pre-school child, although not entirely neglected, lacked the benefits that would come from a definite and standardized procedure in this work. "The child in a large family with both parents living but with the budget hardly adequate for food and lodging is in the worst class," stated Dr. Schlink. "It is among these children that we find the prize babies of the Infant Hygiene Department; but they are thrown out on the world at the end of their infancy. On entering the first grade of school their physical defects are legion." Dr. McKay brought out the point that while movements of a similar nature had begun in the city and worked toward the country districts, the work for the pre-school child had worked in the reverse direction.

Private Organizations

Bailey B .Burritt, general director of the Association for Improving the Condition of the Poor, New York City, Courtenay Dinwiddie, executive secretary of the National Child Health Council, and Raymond Clapp, associate director of the Welfare Federation of Cleveland, presented papers at the general session on the administration of private child health organizations. Mr. Burritt stated that any program for child health should begin an earnest endeavor to give complete pre-natal service. The supervision should continue throughout infancy, and after leaving the baby health stations and before entering school a child should have at least two complete physical examinations. Following the school hygiene program should be an industrial child hygiene program which involves getting the child suitably started on its industrial career. Mr. Burritt illustrated his address by telling of the work done by his organization at the Mulberry Health Center, New York City.

Mr. Dinwiddie declared that "the threads of a broadly conceived plan of service for children must run not only through every phase of the child's work, play, and life in general, but must lead straight to those conditions and forces in his home and community in which he lives, which are moulding his body and his mind, whether for good or for evil."

Mr. Clapp spoke of the various methods of raising funds to carry on the work of private health organizations. He advocates a straightforward appeal to the public for the necessary money. His illustrations were drawn from the plan used by the Welfare Federation of Cleveland.

Nursing and Social Work

At the session of nursing and social work Miss Kathleen Edwards, supervisor of the Nursery School Demonstration at the Columbia University Summer School Session, told of her work in the nursery school movement both here and in England. She stated that the time to learn right social, mental, and physical habits was between the ages of two and four years. She described the day of work and play in a nursery school and to a most interesting talk added a series of lantern slides.

At the same session Miss Gertrude E. Hodgman, educational secretary of the National Organization for Puplic Health Nursing, spoke on the educational standards for child welfare nurses and Miss Winifred Rand, director of the Boston Baby Hygiene Association, discussed the behavioristic problems of the pre-school age. Miss Hodgman said that the nurse must have a knowledge of routine procedure and standard methods, that she should know nursing and the broad background of science on which it is founded, and that she should have in addition a certain attitude of mind that would enable her to handle the different problems given her.

This idea of adaptability was one of the key-words of the convention. It was mentioned in many of the leading papers and spoken of throughout the discussions. The variety of situations due to the nationality of the patients, the geography of the country, the economic status of the community, and similar environmental factors are continually bringing the nurse face to face with new situations for which her previous training has not fitted her. The only possible solution lies

in a basic knowledge of the fundamental scientific facts in order that the nurse can build up a specific solution from the general information she possesses.

Miss Rand dwelt on the folly of bending all energies to the production of a healthy body and neglecting to a great extent the mind of the child. The habit clinic, the speaker said, is of inestimable value in seeking to interpret the actions of childhood.

Maternal Welfare Problem

The morning session of the final day of the convention was devoted to the problems of maternal welfare. In speaking of the service of an obstetrical clinic to the community, Dr. Arthur M. Morse of the Yale School of Medicine, stated that such a clinic in order to get the best results should be a department of a general hospital. Provisions should be made for a prenatal clinic, an out-patient department, and a post-natal clinic. He spoke of the difficulty of getting adequately trained nurses for obstetrical work. Dr. Morse strongly recommended a single unit for the care of all diseases of the female reproductive tract, stating as his reason for this belief that with the exception of gonorrhea of the uterus, practically all diseases of the reproductive organs are associated with child birth and are preventable.

Dr. W. J. Bell, pediatrician to the Maternal and Child Welfare Bureau of the Ontario Provincial Board of Health, in his paper on maternal mortality made two points; first, that maternal mortality is a large and serious problem; second, that the health effort is showing no appreciable effect in reducing the maternal mortality death rate, and that in Ontario it seems to be increasing slightly. The speaker attributed the low rate in England and Wales to the legal requirements relating to midwives and the health education of the mothers. In the discussion that followed Dr. Louis I. Dublin brought out forcefully the fact that all the effort of an excellent pre-natal program could be ruined by poor obstetrical service.

Miss Grace Abbott, Chief of the Federal Children's Bureau, spoke of the administration of the Sheppard-Towner Act. All the forty-two states that have accepted the provision of the act feel that the major responsibility rests on them. Fifteen states are to license, instruct, and control midwives. By no means the least benefit that has resulted from the act is the nation wide interest in maternal and infant welfare.

The last meeting of the convention was a medical session at which Dr. Borden S. Veeder, Washington University, St. Louis, discussed child hygiene in relation to the private physician. He stated that to be effective an infant or child welfare conference must limit its activities to the well child. The best supervision depends, according to the speaker, on an intimate knowledge of the home life of the family. Furthermore, supervision will gain much if it is under the same physician throughout the life of the child. The private physician is therefore, the best man to exercise this function. The speaker concluded, "The welfare conference has definite defects but it has given results. Until the ideal of supervision by the private physician arrives the welfare conference has its place."

Dr. William H. Park, Director of Laboratories, Department of Health, New York City, said that the Schick test was reliable only when the amount of toxin did not exceed one fortieth of a minimal lethal dose for a guinea pig, and when given intracutaneously. Dr. Park stated that at five months 88 per cent of children were found to be immune after toxin-antitoxin immunization.

The relation of nutrition to teeth was considered by Dr. Clarence J. Grieves, Chief of the Dental Clinic of Johns Hopkins Hospital. The nutrition of the mother during the last seven months of pregnancy was stated to be a matter needing the most careful attention. In regard to the dietary requirements for the formation of bone and teeth, Dr. Grieves was of the opinion that too often the solubility and absorbability of the mineral substances given were not carefully considered and thereby the expected results were often wanting. He also stated that nutritional disturbances that effect the bones do not always affect the teeth and warned against drawing parallel conclusions.

The finest of Washington weather favored the convention and an informal gathering at the Corcoran Gallery of Art, a tea at the Federal Children's Bureau, a visit to the Arlington Health Center, and an inspection of the Children's Hospital added variety to the very complete program.

A celebration of the one hundredth anniversity of the birth of Louis Pasteur will take place in Philadelphia, December 27, 1922. According to tentative plans a meeting will be held in the afternoon at the Academy of Music followed by a banquet at the Bellevue Stratford Hotel.

New York's Child Health Program

Although rejecting the benefits of the Sheppard-Towner Act, New York state has provided for the health of its mothers and children by the passage of the Davenport-Moore Act providing for an appropriation of $130,000 for work in the state by the Commissioner of Health through the Division of Maternity, Infancy, and Child Hygiene, of which Florence L. McKay, M.D., is director.

The specific functions to be carried out under the law include (1) making surveys and studies of local conditions influencing the health of mothers and children; (2) advising localities as to providing adequate care of mothers and infants and children to whom such care is not otherwise available; (3) holding health consultations for mothers and children in the rural districts in cooperation with local health officers and other physicians; (4) instructing local public health nurses in the hygiene of maternity and infancy; (5) making available to mothers, through instruction by physicians, nurses, and publications, information concerning the hygiene of maternity and infancy; (6) supervision and training of midwives; (7) prevention of blindness in infancy; (8) care and rehabilitation of crippled children not otherwise provided for: (9) public instruction by means of moving pictures and lectures and other methods regarding preventable conditions affecting infant and maternity deaths.

The Act aims primarily to stimulate localities to undertake their own work for mothers and children through their own agencies and to help such localities in organizing and starting this work.

To secure the cooperation of the physicians and health officers of the state, regional consultants of recognized standing and in pediatrics or obstetrics have been appointed in various sections of the state. These regional consultants will disseminate information as to the plans of the state department in carrying out the work.

The Act does not make provision for financial subsidies for local communities but supplies various types of health promotion service to localities, among them an organization service, a nursing service, medical service, and nutrition service.

With the work extending over the state and not intensively in any one locality, it is not expected that results in the lowering of mortality rates will be noticeable for some time.

The Prevention of Simple Goiter in Man

By O. P. KIMBALL, M.D., Cleveland Clinic, Cleveland, Ohio.

THE problem of goiter is a very old one. It is mentioned in the oldest medical literature and is frequently referred to by the Roman historians. The Arthorva-Veda—a collection of ancient Hindu incantations dating back to 2000 B.C.,—contains extensive exorcisms for goiter.

The term simple goiter or endemic goiter means just one thing—enlargement of the thyroid gland. Simple goiters may develop in any locality, on land or sea, but in certain districts, the incidence of goiter and cretinism has continued at such a high level for generations, involving all domestic animals as well as humans, that it has come to be considered characteristic of or endemic in those localities.

That there are definite goiter districts has been common knowledge for centuries. The most noted of these is in Southern Europe, comprising Southern France, Switzerland, Southern Austria and Italy. But the incidence of goiter and cretinism is even higher in Southern Asia and Eastern Mongolia on the Gobi desert; i. e., Southern China, the Plateau of Thibet, and Himalayan India. In South America the whole Andes region is an endemic goiter district and on the Peruvian plateau goiter and cretinism have probably reached their highest incidence. In North America, the Hudson Bay district, all of the Great Lakes basin, the basin of the St. Lawrence river and the Pacific Northwest, comprising British Columbia, Alberta, Southern Alaska and the states of Oregon, Washington, Idaho and part of Montana are endemic goiter districts.

The end result of a severe, continuous goitrous condition is myxoedema in the individual thus affected, and cretinism in the next generation. Either through its control over cellular metabolism alone, or possibly by some direct coordination with the secretion of the ovaries, the thyroid secretion plays an all important part in the normal growth and development of the adolescent period. Congenital goiter is due to lack of maternal thyroid secretion during pregnancy and proves the importance of the thyroid secretion during this period. The three periods of life during which goiter is likely to develop are fetal life; pregnancy; and adolescence, the extra demand for thyroid secretion at puberty and during pregnancy being sufficient explanation of the development of so many goiters at these periods.

Treatment with Iodin

Iodin in some form has been used for centuries in the treatment of goiter. It was first knowingly used in 1820 by Coindet and has been used extensively ever since. In 1895 Baumann discovered that iodin was a constituent of the normal thyroid. In 1907 Marine emphasized the fact that iodin is essential for the normal function of the thyroid and also, that in active hyperplasia of the gland, the iodin store is reduced, the decrease in iodin content being proportional to the degree of hyperplasia. In mammals, e. g., the dog, sheep, ox, pig, rabbit, cat, and man it has been shown that normal thyroids contain the highest percentage of iodin per weight of the gland, averaging 0.2 per cent with extremes of 0.1 per cent and 0.5 per cent. It has also been demonstrated that as soon as the iodin content of the thyroid falls below 0.1 per cent, active hyperplasia of the gland begins. In other words, functional hyperplasia, and therefore goiter cannot develop, at least in the mammals above mentioned, if the iodin content of the thyroid is maintained at a minimum of at least 0.1 per cent.

The first practical application of prevention of goiter on a large scale was made in the fish industry. In 1909, endemic goiter was causing so much trouble and loss at the Pennsylvania State fish-hatcheries, that the state commissioners were ready to abandon the industry, under the apprehension that the disease was cancer. The researches of Drs. Marine and Lenhart soon demonstrated that it was only a problem of endemic goiter caused by two factors—(1) over-crowding and (2) the exclusive use of an artificial food which was almost totally devoid of iodin. The whole problem of endemic goiter in these hatcheries was solved by changing the over-crowding and by adding a very small amount of iodin to the food. Marine's theory that "simple goiter is the easiest known disease to prevent" was based on this work, together with other animal experimentation.

By 1915 the active principle of the thyroid had been isolated in crystalline form by Kendall of the Mayo Clinic, who found also that any substitution for iodin in this compound completely destroyed its physiological activity.

We know of no field in preventive medicine or public health in which more work had been done and in which such complete evidence of the possibility of absolute prevention, and the impossibility of ill effect, had been secured as was the case with endemic goiter at the time when Dr. Marine and the author proposed to control the development of goiter in school girls. Yet there was considerable criticism of the plan of giving iodin to girls promiscuously. Some predicted many cases of iodid rash; others thought a great number of the girls would develop exophthalmic goiter. Both of these possibilities were considered throughout the work done in the Akron public schools. They were explained to the principal of each school and the teachers were asked to record any untoward effect. During three years more than ten thousand treatments were given and the sum total of ill effects included but eleven cases of mild iodid rash. Six of these were so mild that the girls continued to take the treatments. The other five were advised to stop the treatments, and in each case the rash promptly disappeared. From these data it would appear that a mild iodid rash may occur in approximately 0.1 per cent of cases under treatment.

In the practical application of the idea of prevention, we chose the public schools for two reasons—(1) The children are in the adolescent age, the most important period in the development of goiter. (2) The public school group furnishes the best census of goiter in any community, and makes it possible to carry out, through the school organization, the most expedient, economic and practical plan of prophylaxis and education.

In October, 1916, the supe dent of schools of Akron, pr full support of all the scho ities if the local medical societ sanction the work. After the ea had been explained to the Summit County Medical Association, this body, in a regular session, voted to send the following message to the

school board: "The idea of prevention of goiter, as outlined, can do no harm and may do good. We are in favor of seeing it carried out." The school board authorized the superintendent to call upon Dr. Marine and the author to make a survey of goiter among the school children of Akron and to carry out any plan of prevention we saw fit.

In April, 1917, an examination for thyroid enlargement was made of all girls from the fifth to the twelfth grades, inclusive. The boys were not examined because of the relative infrequency of goiter in boys. The result of each examination was recorded on a special individual card which on one side had space for the pupil's *name, school, age, grade,* and for the tabulations of four thyroid examinations. On the back of this card was space for the recording of eight series of prophylactic treatments given by the teacher. This goiter card was attached to the school record and was transferred whenever a girl changed schools. In no other way could we keep track of so many cases over so long a period of time.

The results of our first examination of all girls from the fifth to the twelfth grade inclusive are shown in Table I.

TABLE 1

Normal thyroids	1688 or 43.5 per cent
Slightly enlarged thyroids	1931 or 49.9 per cent
Moderately enlarged thyroids	246 or 6.3 per cent
Markedly enlarged thyroids	7 or 0.3 per cent
Adenomas	39 or 1.0 per cent
Total	3,872

In April, 1917, the first prophylactic treatment was administered to more than 1,000 girls who had elected to take it. No girl was urged and no one was permitted to take the treatment unless she had a written permit from a parent.

Two quart amber bottles were filled with the school's drinking water and sufficient sodium iodid was added so that one teaspoonful would contain 3 grs. of sodium iodid. This was administered daily at the school by one of the teachers at a convenient time—morning or evening. All the girls in the building taking the prophylactic treatment would line up and as individual drinking cups were supplied they would fill their cups with the amount of water they wanted to drink, the teacher would add a teaspoonful of the iodid solution and the pupil would drink it immediately. By this method the administration of the prophylactic dose consumed only a few minutes each day for a period of two weeks each spring and fall.

TABLE II

SUMMARIZED RECORDS OF PUPILS TAKING AND NOT TAKING PROPHYLACTIC TREATMENT

	Taking Totals	Taking Percent	Not Taking Totals	Not Taking Percent
Normal:				
Unchanged	906	99.8	910	72.4
Increased	2	0.2	347	27.6
Slightly Enlarged:				
Unchanged	477	41.9	698	72.8
Increased	3	0.3	127	13.3
Decreased	659	57.8	134	13.9
Moderately Enlarged:				
Unchanged	29	20.3	57	64.0
Increased	0	0.0	21	23.6
Decreased	114	79.7	11	12.4
Total	2,190		2,305	

In November, 1917, a second examination of all girls from the fifth to the twelfth grade inclusive was made. In all 4,415 cases were examined, 1,772 of which were new cases. Of the 2,643 girls examined previously, 764 had taken the prophylaxis during the preceding six months and 1,879 had not. As was published then, among the pupils taking iodin there was not a single instance in which a normal thyroid had increased in size while among those not taking iodin, 26 per cent of the glands designated as normal at the first examination, showed definite enlargement—some already having become moderately large goiters. But more than a prophylactic action was shown by the results—just one-third of the so-called "small goiters" had disappeared, and one-third of the "moderate goiters" had decreased 2 cm. or more.

In November, 1918, a third examination of 4,277 girls was made. In October 1919, 5,520 individual examinations were recorded, 9,967 different girls having been examined during the entire period.

Effect of Treatment

The effect of the treatment is shown in Table II in the columns marked "unchanged" and "increased." Since examinations were made only once each year, each record must cover at least one year while many records extended over a period of two and one-half years. Of the girls with normal thyroids at the first examination who did not take iodin, 347 or 27.6 per cent showed enlarged thyroids at the final examination; while of those that were normal at the first examination and took the iodin as prescribed, the thyroids became enlarged in only 2, or 0.2 per cent. These two cases were investigated and we found that each case developed a small goiter in spite of the prophylactic treatment given. The thyroid of the first case, a girl 16 years of age, had been classified as normal on three successive examinations while on the fourth examination it was classified as slightly enlarged although she had taken the iodin each spring and fall during these periods. A special examination verified the fact that the thyroid had become enlarged, but in addition it disclosed very large and infected tonsils, decided evidence of infected adenoids with enlarged cervical lymph glands, with a history of frequent attacks of tonsilitis during the preceding two years.

The second girl, 15 years of age, had been watched for a year, had taken the prophylactic treatment twice and apparently had developed a small goiter during the year. On special examination the presence of an enlarged thyroid was verified, but this girl although fifteen years old was in only the third grade. Careful inspection revealed the presence of Hutchinson's teeth, a depressed nasal arch, and the fact that she was almost blind from interstitial keratitis. This was a case of neglected congenital syphilis.

Among those whose thyroids were classified as slightly enlarged at the first examination and in those not taking the prescribed iodin, the thyroids underwent further enlargement in 127 or 13.3 per cent; while in those taking the prescribed treatment, in only three or 0.3 per cent did the thyroids become more enlarged. Two of these three girls were re-examined on January 13, 1920 and the increased enlargement was verified. One of these three had a chronic infection of the tonsils with recurrent attacks of tonsilitis during the last year. In another of these three cases, superficial inspection failed to show any pathological condition. The third girl was not present for this final examination. These five cases were the only instances among 2,190 pupils taking iodin in which the thyroid gland showed enlargement. Of the 2,305 cases not taking iodin, 495 showed thyroid enlargement. Of the group with small goiters, taking iodin, 659 or 57.8 per cent of the thyroids returned to normal, while of the same group, not taking iodin, according to our records, 5,134 or 13.9 per cent returned to normal. However, we know that there is an error in the last figure, for many girls who were not taking iodin under the school jurisdiction were receiving it in some form

from their physician. No attempt has been made to estimate this error. In the practical application of the preventive treatment, one must keep constantly in mind the three periods during which simple thyroid enlargements most commonly occur: viz., (1) the fetal period; (2) the adolescent period; and (3) the period of pregnancy.

The prevention of goiter in mother and child is as simple as the prevention of the goiter which develops during adolescence.

Practically, it would seem that the responsibility for the prevention of fetal goiters and of the goiters of pregnancy belong to the individual members of the medical profession whose efforts should be supplemented by public education.

The prevention of goiter in the adolescent period, on the other hand, should be a public health measure under state, county or municipal control. The existing systems of organization of the schools, public and private, are sufficient to handle all the details without additional aid or expense. Education of the pupils in the value of this prophylactic measure could be combined with the actual administration of iodin so that after leaving school they could continue the treatment, if necessary. In industrial medicine, physicians could render an important service in this field. As thyroid enlargement is approximately six times as frequent in girls as in boys, each community must decide whether it will include both sexes in its endeavors to prevent goiter. Likewise, as to the age of beginning and stopping the use of iodin, that must be determined by the age of occurrence of goiter in each section. In this climate probably the maximum of prevention, coupled with the minimum of effort, would be obtained by giving it between the ages of 11 and 17 years. As applied to our school system this would mean beginning with the fifth grade

The prevention of goiter in individuals with other diseases, or in those residing in such extremely goitrous districts as some of the glacial valleys of Alaska and British Columbia and certain districts of the Alps and Himalayas, might require larger amounts of iodin in normal individuals than those indicated above.

The system of treatment outlined above has been used successfully in several different towns in Ohio, in some Cleveland factories, in plants of the National Lamp Works, and by Prof. R. Klinger in Zurich. The ease with which goiter prevention can be applied as a public health measure makes possible the ultimate control of endemic goiter.

The same imagination which saw through the theory to the practical results of the prevention of goiter can now see, a few generations hence, the extinction of endemic goiter and cretinism in every civilized nation in the world.

Red Cross National Convention

ENTHUSIASTIC endorsement by the delegates to the National Red Cross Convention of the action of the Central Committee in authorizing a relief campaign for the sufferers and refugees in the Near East, marked the opening session of the annual meeting held in Washington, October 9-12.

In an address on the ideals of the League of Red Cross Societies by the General Director, Sir Claude Hill, credit was given America for the creation of this international agency. The noted visitor spoke with feeling of the late Henry P. Davison as the originator of the peace time program of the Red Cross, and as a man to whom vision had been given to see that the volume of preventable suffering in time of peace was at least as great as that in time of war. "He had," the speaker declared, "the courage to hope that the world would seize the opportunity which had been afforded by the development of a peace-time program of work for the Red Cross Societies to work harmoniously on a cooperative basis toward mutual help and self-betterment."

In discussing specifically the principles of the League, Sir Claude said in part, "If the ideal for which the League was launched be properly studied and understood, it will be found to amount to this: The organization of the National Red Cross Societies the world over to furnish mutual help, suggestion, advice, and experience to one another, aiming primarily at permanently improved health and improved social and economic conditions, and, in the second place, consequentially at reconstruction and restored sanity of mind as well as body. The founders of the League of Red Cross Societies would help forward the attainment of this great objective, and I believe I am correct in saying that your distinguished chairman, Judge John Barton Payne, who is also our chairman, cherishes, and believes in and persists in the same faith."

During a speech on volunteer service at the plenary session of the convention Miss Mabel T. Boardman, Secretary of the American Red Cross, presented her views on the purposes outlined in, and the powers granted by the present charter. She intimated that the society is exceeding its obligations and may have "lost its bearings."

In an informal discussion later in the session on some of the questions raised by Miss Boardman's address Judge Payne said: "Neither the Central Committee nor the chairman feel any such restrictions under the provisions of the charter directing the Red Cross to take means to prevent disaster, disease, calamities, and so on. There is authority and warrant in the charter for carrying on any service which renders disease, epidemics, disasters, or any thing of that sort, less frequent or in other words, tends to prevent such calamities.

"Public health nursing, which is mentioned in the question asked, is one of the things to which the Central Committee attaches a great deal of importance. The only limitation we have felt on that subject is—I do not believe, and I speak for the Central Committee in this, too, I think—that the Red Cross should be in competition with other health or charitable organizations; and that is what I understood Miss Boardman to mean this morning.

"We should not lose ourselves in our local obligations. If there is in our localities some other organization which ought to do that work, it should do it. With reference to public health, whenever we start a public health nurse in a community, it is pioneering. The moment that the town or county is educated to the point of taking over the work we should use every effort to bring about the taking over of that activity by the community, because we regard it as a community obligation. But since there is no other agency known that is prepared to do that pioneer work, we regard it as a very important part of the Red Cross program."

The City of New York has created a new division of its department of health, namely, the Division of Veterinary Inspection. The division is charged with the duties of investigation and of enforcing veterinary activities.

Automobile Accidents in the United States*

By AMBROSE RYDER and H. P. STELLWAGEN, National Bureau of Casualty and Surety Underwriters, New York City.

THE automobile caused the death of 13,000 people in the United States during 1921, an average of over 35 per day and an increase of nearly 1,000 over 1920. About 75,000 persons meet their death every year in accidents of one sort or another. The automobile then, is responsible for over one-sixth of all deaths by accidental causes, and, therefore, stands very high among the preventable causes of accidental death.

A tabulation of traffic fatalities in 50 American cities shows a total of 3,837 automobile deaths as compared with 3,637 for 1920. The 1921 automobile death rate for these cities was 155.1 per million population, an increase of 3.6 per cent over the 1920 death rate of 149.7. The data for those cities, which are scattered over the entire United States and which aggregate a population of 24,735,383, may be considered characteristic of the whole country. It is, therefore, reasonable to assume that the percentage increase in the 1921 automobile death rate over the 1920 rate for those cities was the same as that for the entire United States. The 1920 rate for the continental United States as reported by the United States Bureau of the Census was 104.05 per million population. On the basis of a 3.6 per cent increase this figure becomes 107.8 for 1921. This rate applied to the estimated population of the United States as of July 1, 1921 of 107,833,284 produces a total of 11,624 deaths from automobiles in the United States for 1921.

This figure does not include automobile fatalities which occurred at railroad grade crossings. According to the classification scheme used by the United States Bureau of the Census and by the Health Department of the fifty cities whose data are included in this report, all deaths caused by collision between automobiles and and heavier vehicles, such as railroad trains and interurban trolleys, are assigned to the heavier vehicles. This statistical classification notwithstanding, the automobile must take the blame for most automobile accidents at railroad crossings. Actual observation on a large scale has proved that few motorists observe ordinary precaution when approaching grade crossings, such as slowing down to moderate speed and looking and listening before crossing the tracks.

According to statistics compiled by the Interstate Commerce Commission there were 1,702 persons killed at railroad crossings in 1921. About 75 per cent of these, or 1,276, were occupants of automobiles. These 1,276 deaths added to the 11,624 as calculated on the basis of the United States Bureau of Census data give a total of 12,900 and the meager allowance of an even hundred deaths for collision between automobiles and street cars and interurban trolleys brings the figure up to 13,000.

The number of people injured (not killed) in automobile accidents cannot be estimated very closely because of the scarcity of data on the subject. However, an approximation of such injuries may be made from the following. In the state of Massachusetts, for the six year period of 1915 to 1920 inclusive, 2,608 people were killed in automobile accidents, and 68,671 injured or 26.4 injuries for every fatality. In the state of Iowa, from 1916 to 1919, 14,200 people were injured and 920 were killed; a ratio of 15.4 to 1. Naturally the ratio of injuries to deaths would be lower in a state like Iowa where accidents are proportionately more severe, than in Massachusetts where the congestion of population in the cities accounts for more minor accidents. According to figures compiled by the Police Department of New York City, 848 persons were killed and 20,461 injured in that city during 1921, making 242 injuries for every death. It is reasonable to suppose that the country-wide proportion between injuries and fatalities is between 20 and 24 to 1. This means that there were at least 200,000 people injured in automobile accidents in the United States during 1921, and possibly as many as 300,000.

Damage to Property

Property damage done by automobiles is even more difficult to estimate. Only a few cities and practically no states have kept statistics on automobile accidents involving damage to property. However, a rough approximation of the damage done by automobiles can be made on the basis of the statistics of casualty insurance companies as compiled by the National Bureau of Casualty and Surety Underwriters. These statistics show that there are approximately four property damage accidents to every accident involving personal injury, and that each accident results in about $50 damage to property other than the car responsible for the accident. It may be assumed, therefore, that there were over 1,000,000 automobile property damage accidents in the United States during 1921, costing at least $50,000,000. This figure does not include loss through fire and theft nor does it include much of the damage sustained by the automobiles themselves.

The increase in the automobile death rate of 149.7 to 155.1 per million population came about in the face of an actual decrease of 4.8 per cent in the death rate for all vehicles. From the following summary it will appear that the death rates for street railways and steam railways fell off considerably in 1921. On the other hand, the "other vehicles" classification, which includes for the most part horse drawn vehicles, motorcycles and bicycles, increased somewhat.

TABLE I TRAFFIC FATALITIES IN 50 AMERICAN CITIES (RATES PER MILLION POPULATION)

	No. of deaths		Rates		Over
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Automobile	3,837	3,637	155.1	149.7	3.6
Street Railway	601	[illegible]	[illegible]	31.8	[illegible]
Steam railways	[illegible]	[illegible]	34.0	[illegible]	[illegible]
Other vehicles	[illegible]	293	13.0	12.1	[illegible]
All vehicles	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] deaths and rates

Although the automobile death rate for Los Angeles is about twice that of New York City when based on population, it is only one-third as large when calculated on automobile registration. Cleveland's death rate based on population is a great deal higher than that of Boston, but only about one-half the size of the latter's on the basis of automobile registration.

Having determined something of the extent of the automobile accident problem, the next step is to find out the causes that have produced the existing situation. Despite the scarcity of information on the causes of automobile accidents, some definite conclusions may be arrived at from the following data:

The Travelers Insurance Company of Hartford, Conn., recently analyzed 200 fatal and 200 near fatal automo-

* Read before the Public Safety Section, Eleventh Annual Safety Congress, August 31, 1922.

bile accidents. The analysis produced the following information: 131 accidents were caused by too much speed; 64 accidents were caused by careless operating; 40 accidents were caused by drunken operators; 40 accidents were caused by children darting in front of cars; 30 accidents were caused by cutting in ahead of traffic; 12 accidents were caused by insufficient lights; 9 were caused by defective brakes; 7 accidents were caused by dazzling lights.

The Massachusetts Department of Public Vehicles tabulated 521 fatal and 390 near fatal automobile accidents for 1921. In 292 cases, the cause of the accidents were given as "too fast for conditions," and in 150 cases, the cause was "careless operation." These two causes led all the rest.

In Maryland, the State Roads Commission investigates all automobile accidents and plots them on a highway road map of the state. From this map it is evident that most of the accidents occur, not in the congested parts of the state, not on the sharp curves and deep grades along the roads, but on the long straight stretches of improved roadway which invite the motorist to speed up his machine.

All this evidence points to the fact that the chief cause of automobile accidents is the careless and reckless motorist. Of course, the child darting in front of an automobile, and the pedestrian running across the street, are responsible for many accidents, but the chief offender is the motorist who jeopardizes human life through sheer thoughtlessness or criminal recklessness.

A striking example of what can be accomplished in the reduction of automobile accidents by taking drastic action against offending motorists was furnished by the state of Massachusetts. In 1920 there were 21,086 injuries in the state from motor vehicle accidents, and in 1921, the figure was 11,487, a decrease of 45 per cent. During 1921, 4,899 licenses were revoked. Evidently the revocation of these licenses had a stimulating effect on careful driving.

Evolution Working Backward

THE old theory of one-way evolution, in which each successive generation was supposedly higher and better than the old and progress toward perfection of type was certain and uninterrupted, would be a comfortable belief if it could be held in face of cumulative facts asserting that like produces like. Once farmers planted the nubbins of their corn and the potatoes that were too small to sell. Now they know better. They cut up their finest potatoes to plant and their seed corn is pedigreed as carefully as a Colonial Dame. The result is a doubled yield in potatoes richer in starch and corn richer in proteins.

But science has been slower in effecting an intelligent control of human life, and there is need for haste if the progress of the race is to be assured. The age of instinct is passing, the reign of reason has not come. Man has by sheer pressure of the circumstances of his life developed up to a given point. He has now succeeded in easing the pressure. Will he be able to go forward rationally, of his own free will, or sink back until he falls under the sway of the blind and merciless struggle for existence?

Discussing this question, the *Scientific Monthly* comments on recent sociological investigations in Great Britain as follows:

A decrease in the birth rate is not necessarily a misfortune to a country. Very likely the British Isles have now all the population they can support in comfort under present economic conditions. The alarming thing about it is that the breeding is from the poorest stock instead of the best. Whatever objective standard one may take, this is true. A statistical study of the population of Great Britain showed that in the districts where there was the most overcrowding, the cheapest type of labor, the lowest degree of culture and education, the highest percentage of pauperism and lunacy, the greatest criminality and the highest death rate from tuberculosis and infantile diseases, there the number of children was greatest in proportion to the possibly productive wives. It is a clear case of the survival of the unfittest, the reversal of evolution. No race can maintain its efficiency and virility against such reactive forces.

The future of a country depends ultimately upon the character and ability of its people. Increase of wealth, advance of science, improvement in education, discoveries in sanitation, just social conditions, all the achievements and hopes of the present age will be of little benefit to posterity if there is a decline in the native quality of the race. It would be disastrous to hand over a more perfect and complicated governmental machine to inferior engineers.

One-seventh of the present generation will be the parents of one-half of the next. Therefore, two generations of selection, natural or designed, would completely transform the character of a nation. Is this seventh composed of the best men and women that we have?

This is what is going to determine whether civilization shall advance or retrograde. Galton's ideal of eugenics may be too much in advance of the age to be practical, but at least something could be done to awaken the people to the imminent dangers of dysgenics.

Plans are being formulated and blue prints executed for the organization and construction of the medical center which has been created by an alliance between the Medical School of Columbia University and the Presbyterian Hospital, New York City, under the direction of Dr. C. C. Burlingame, executive officer of the administrative board. The plans include a new College of Physicians and Surgeons, a new Dental School, a new Presbyterian hospital, new Sloane hospital, and new Vanderbilt clinic. Hospitals will probably be built for special types of cases.

Weighmaster Cho Cho

International Film Service

Making health attractive to the country's youth is the business of Cho Cho, U. S. Public Health Service health clown, who is shown here weighing one young citizen on the steps of the Treasury at Washington.

Red Cross in Western Russia and the Baltic

The Program for a Constructive Demonstration of Child Health Work

By J. H. M. KNOX, Jr., M.D., Field Medical Director, American Red Cross, Paris, France.

THE Commission to Western Russia and the Baltic States was organized in Berlin under Lieut. Col. Edward W. Ryan, who had served continuously with the American Red Cross since 1914. The Commission consisted of a group of physicians and young business men familiar with handling supplies, most of whom had had active army service. It started from Berlin for Latvia in October, 1919, carrying its supplies in a long line of motor trucks. The job of the Commission, like that of similar American Red Cross commissions sent at this time to other countries of war-stricken Central Europe, was to help relieve the widespread destitution and distress resulting from the war. Almost at once the convoy met with actual fighting between the German Iron Division and the Latvians for the possession of Riga, and shortly after it took part in the struggle in the area of Dvinsk, which resulted in driving the Bolshevists out of Latvia. At the same time the Bolshevists were expelled by the Russian Northwest Army from Esthonia, and driven to within five miles of Petrograd, when they in their turn were defeated and forced back into Esthonia.

In all this period of fighting the American Red Cross, often under fire, was active in caring for the wounded of all the armies. A severe epidemic of typhus fever broke out in the spring of 1920 among the troops of the Russian Northwest Army, almost without rations and crowded in unhealthful barracks in Esthonia. The disease threatened to involve the whole country but was checked in six weeks through the effective measures introduced by Colonel Ryan and carried out by the American Red Cross Commission. In this splendid piece of public health service two of the commission succumbed to the disease. In the year that followed the work of the commission was one of general relief to the thousands of refugees who were pouring into Finland and the other Baltic States from Bolshevist Russia. Many dispensaries were started in connection with the American Relief Administration and nearly all existing hospitals and homes were materially aided. It is fair to say that the generous and timely assistance of the American Red Cross at this critical period greatly helped these newly-formed countries to weather the storm and perhaps made it possible for them to establish their national existence.

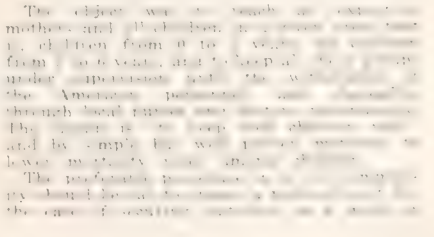
In May, 1921, those in charge of the American Red Cross work in Europe decided that a general relief program was no longer needed, and directed that the activities of the various commissions should be devoted to a constructive program of child health work. The Commission to Western Russia and the Baltic States was asked to concentrate its work in the three states of Esthonia, Latvia and Lithuania. Nearly 150 clinics for children were organized throughout these countries, usually in connection with the American Relief Administration feeding stations already established. Each clinic was conducted by a native doctor who was in attendance for two hours three times a week, and two native nurses who spent their time out of clinic hours in visiting the families in their homes, under the doctor's directions. The choice of these doctors and nurses was made with the assistance of the welfare department of the several governments. Although, of course, a large proportion of minor ailments, including various degrees of anemia and malnutrition, were treated in these clinics, a great amount of good was accomplished. Many of the children so reached would not have had any medical supervision otherwise. The records show that nearly 85,000 children attended these dispensaries. In Riga alone, in three dental clinics 12,000 children have received dental care free of charge.

Child Health Program

The child health program in the Baltic States was greatly strengthened by the advent, during the summer and fall of 1921, of American nurses and social workers. These experienced women devoted themselves to supervising the nursing work of the clinics, to giving instruction in home visiting and social service to the native nurses, and in forming committees of citizens cooperating in the work of the centers. In the larger cities, notably in Riga, child welfare work of a high order had been carried on before the war. During the past winter large amounts of clothing have been distributed to children throughout the three states. More than 40,000 children, selected by local committees, have been assisted in this manner, and various philanthropic agencies and institutions have been given generous allotments of garments.

In addition to this plan of rather general material and medical relief for the children of the Baltic States, early in the present year certain strategic centers were chosen in each country for setting up an intensive child health program, i. e., one which attempts to reach and keep well every child in a selected area. The expectation is that when work of this character has been carried on sufficiently long, the results obtained in the reduction of sickness and death among the child population, will be so striking that other similar centers will be started elsewhere. Every effort has been made to avoid expensive methods, and to stress simply the fact that the reaching, if possible, of every expectant mother and every infant while well, with the proper medicine, advice and nursing supervision, will demonstrate that children may be healthily born and reared even amid adverse surroundings. The following is the outline prepared for use in these demonstrations in child health which are now started in several centers of the Baltic States. We believe the methods are sound and if followed in any community will serve, perhaps, in the most convincing way, to show how easy it is to reduce mortality and morbidity among children.

Outline of Work



police district, with a fairly average population of 20,000 to 30,000 people; not necessarily the poorest and not where any one political or religious group predominates in a manner in any way calculated to embarrass the enterprise. (b) Wherever possible in connection with the unit, arrangements should be made for the registration of expectant mothers, for at this time the advice of a physician and nurse usually is most willingly received. This contact may in some cases be best made through an existing obstetrical clinic or a physician experienced in this field. (c) In several countries birth registration within a short period is available under the law. The statistical bureau of many cities can furnish once or twice a week a list of all the new born babies in the political unit, and therefore can give the present total infant death rate under one year existing in the district chosen. (d) Where no statistical bureau exists the approximate registration can often be made through churches, at the time of baptism in Lutheran and Catholic churches, and through the Rabbis among the Jewish populations, clinics, where there is an existing obstetrical or prenatal clinic, house to house canvass, or police registration in small communities. In some instances a whole town of 5,000 to 10,000 may well be chosen. Here there is less likelihood of securing accurate statistics. In both these instances, town and city communities, only places are selected where cooperation under American supervision is possible, and where there is a possibility of developing good committees to continue the demonstration. The essential features of this plan are applicable to purely rural communities.

The building selected for the center must be in or close to the political unit of the city in which the intensive work is planned; preferably in a pediatric clinic working in close affiliation with an obstetrical clinic. An unusually favorable place for this intensive program is in association with some strong pediatrician using his clinic as the local. The quarters for a three room center should contain a waiting room furnished with benches, one table and filing cabinet. The examination room should contain an examination table for babies, lever scales, small supply cabinet, wash stand and basin, table or desk, chair, microscope, slides and stains, and urine analysis set. There should be in the kitchen facilities for heating milk and facilities for cleaning bottles.

Where it is possible, the expense of equipment, light and heat and maintenance should be shared in, to a large extent, by the local societies.

In some instances it may be necessary to give milk and certain supplies. This, however, is not an important consideration of the clinic, and should only be done to help the individual child, and it is recommended that supplies should not be distributed from the center but from some other location, on order of personnel in the Center.

The phases of management as it relates to the infant: (a) Babies should be brought to the clinic once a week up to three months: from three months to seven months, twice a month; from seven months to one year, as often as the attending physician deems necessary. (b) When the new born baby is under the care of a private doctor, there should be one visit to the home, and the doctor asked to give a report once in two months on the condition of the baby. (c) In case of illness the center is responsible for the baby's care, and where this can not be provided in the home, adequate hospital supervision must be found. (d) When the baby is removed from the district, an effort should be made to keep in touch with it at regular intervals.

As it relates to the personnel, management should provide that (a) where the American Red Cross has medical, nursing or social welfare personnel, the A. R. C. officer in charge will inspect and report regularly on the operation of the activity. (b) A native doctor trained in pediatrics should be in charge of the center and should hold clinics as often as is necessary to comply with the above program. In beginning this intensive work, it would be advisable to have the whole time of a qualified native doctor. Provision should be made for home visits by the doctor when necessary. (c) The nursing activities are to be under the direction of the American Red Cross nursing service, even in the event that the entire nursing personnel are local nurses. (d) The social worker will organize and cooperate with the local committees having in mind the permanency of the work, this committee to meet at regular intervals and advise as to the conduct of the work of the stations. The social worker will also give instruction in social service to nurses and volunteers. It may be advisable to have the social worker direct the business of the station, the filing of records, etc. In centers in which there may be no social worker, a socially trained nurse will take over the active functions. (e) Of course, the chief object in making this demonstration in intensive child welfare work is that the usefulness of the work for children should so impress itself upon the community officials and physicians that they will be willing to carry on after the withdrawal of the American Red Cross, and also to reproduce similar centers elsewhere. The responsibility for this, however, is assumed by the head of the American Red Cross Commission. Personnel in the Centers are only responsible for the character of the work there performed.

Standard records are provided and should be carefully kept up to date. At each visit of the infant a notation should be made by the nurse or doctor as to the care demanded. The records are attached. Records of the mother and children belonging to the same family should be kept in a single folder so that each family group may be found together.

An important feature of a child health program is to care for children of runabout age, namely, from two to six years. One clinic a week for this group should be established at a specified hour and each child belonging to this group should report at least monthly. This is an age in which many serious physical defects develop; defects which are often easily remedied if recognized in their incipiency. It may be wise in each center to have a separate clinic for older children—those of school age, or to cooperate actively with school physician in the chosen district in the care of this group.

In regard to the examination of patients, (a) expectant mothers should be examined as early as possible in their pregnancy. Examination should include the condition of the heart, urine, pelvic measurement and unusual findings. Examination of urine in normal cases should be repeated each month and oftener if there is an indication. Any abnormal condition found by the nurse in home visit upon expectant mother should be promptly reported to the physician.

(b) Examination of babies should include the weight, length, condition of the glandular system, heart and lungs, abdomen, nervous system, skin, bones and any unusual findings. (c) Examination of older children should include height, weight, throat, glandular system, eyes, heart, lungs, abdomen, nervous system, bones, skin and unusual findings.

Appointments should be made with mothers specifying the date and hour on which they should return to the center and they should be given a slip with the time of return written or stamped thereon and when they do not keep these appointments they should be visited in their homes. As the numbers grow, it would be desirable to make these appointments for various mothers at slightly different hours so that many will not be kept waiting at one time in the center, excepting, of course, on those days when instruction is given to a group of mothers. Following out this rule, much time will be saved to the patients.

It is essential that the survey of the area should be as complete as possible. This should include information about churches, schools, clinics and volunteer organizations in the area. Information also as to the general housing conditions, water and milk supply, drainage and similar factors affecting health should be obtained.

An enlarged map outlining the area should be made and put on the wall for ready reference.

It is extremely important and should be emphasized at all times that the clinic primarily should be considered as for the care of well children. "Keep well children well" is the idea that should be kept constantly in mind and should be explained to all of the agencies in the district and elsewhere as well as to the local physician to whom would be referred sick children. The health center physician might dispense simple remedies for very mild ailments and might give after investigation, to certain cases, both mothers and children, additional foodstuffs to increase their nourishment.

Work of the above character is now under way under the direction of Colonel Ryan, M.D., and under the immediate supervision of an American nurse and social worker, in Narva, Reval and Dorpat, in Esthonia; in Libau and Riga in Latvia, and in Kovno in Lithuania. We are particularly interested in these demonstrations in the university towns of Dorpat, Riga and Kovno, for here it will be possible to acquaint medical students at first hand with the comparatively simple methods of keeping well children well, so that when these students enter into medical practice they will be interested in and know how to carry out similar work in their own communities.

In order to continue the child health program in the Baltic States after the withdrawal of the American personnel, the great need is for nurses who have had some public health training. This was appreciated early, and a well-trained nurse with qualities of leadership has been chosen from Esthonia and one from Latvia, and have been sent to London for a graduate course in public health nursing. In order better to equip other nurses in social nursing so that they can carry on our work and do public health nursing in their own countries, a short course in public health nursing has been opened in the celebrated university town of Dorpat. Only the more experienced nurses have been selected by the health department of each country. Lectures are given by the members of the medical faculty and by an American public health nurse, and the students receive practical training in the intensive child health center at Dorpat, which is administered from the university clinic. We feel that the twenty-five nurses who are taking this course, will be greatly helped by this experience in carrying on child health work in their respective countries. The expenses of all these nurses attending the course are being paid by the health departments and the national Red Cross societies.

We are asking the professors of pediatrics in the universities of Riga, Dorpat, and Kovno to be especially interested in our intensive centers, and on withdrawal to give them their personal supervision, and we have every assurance that the work begun as outlined will be continued permanently. Already more than twenty of the smaller clinics are being maintained entirely by local resources.

The American Red Cross Commission to Western Russia and the Baltic States has given itself unsparingly during a period of war and pestilence to the care of wounded soldiers and to the stamping out of a devastating epidemic. It has fed and clothed thousands of dependent civilians, women and children, and has provided for them medical and nursing care, and has planted the seed of thoroughgoing child health activity in the newly formed states which it is hoped will take root and multiply until unnecessary sickness and death may be done away with.

Digest of Sanitary and Hygienic Advance

RESEARCH is ranging far afield in the endeavor to discover new and improved remedies for those diseases in which there exists in the blood-stream a living parasite, thus, Fournier, Leviditi, and Schwartz reported to the Biological Society of Paris at its June 24, 1922 meeting (*Gaz. d. Hôp.*, 1921, 51, 95, p. 828) the results of their experiments with the salts of vanadium in the treatment of experimental and human syphilis. They pointed out that the three elements, arsenic, antimony and bismuth, belonging to the same series in the Mendeleef classification, possess an energetic power against the *Spirillacae*, the *Spirochaetacea* and the *Treponemata*. They were therefore led to perform experiments with the view of determining whether or not the various members of the sub-group of vanadium, niobium and tantalum possess any similar powers, particularly with regard to syphilis. No appreciable results were obtained with niobium and tantalum but vanadium proved to have a treponemicidal power approaching that of the salts of arsenic and bismuth. Tartrovanadanate of potassium injected subcutaneously into infected rabbits in doses of Gm.0.015 to Gm.0.020 per kilogram of weight brought about the disappearance of the treponema in from twenty-four to forty-eight hours and the cicatrisation of the syphilitic lesions in three or four days. In human syphilis, tratrovanadanate in 2 per cent solution administered subcutaneously or intramuscularly in Gm. 0.10 to Gm.0.15 doses every two or three days gave the following results: disappearance of the treponemata after the first or second injection; cicatrisation of the chancre and erosive syphilids of the skin and mucosa, sometimes very rapidly; and very marked reduction of the adenopathies. Observation over a considerable period of time of patients thus treated seems to show that vanadium not only clears up the surface lesions but also exercises a profound influence on the evolution of syphilis in such a manner as to warrant more exhaustive research for more potent and less toxic compounds.

Intravenous Injection of Quinin

Brahmachari (*The Lancet*, 1922, cciii, 5160, p. 175) sounds a note of warning against the careless intravenous injection of quinin solutions and points out that there may be a dangerous fall of blood pressure following the injection of concentrated solutions of the salts of quinin in the treatment of malaria. He concludes that in giving bihydrochlorid by this method, the solution should not be stronger than 1 to 300 and the rate of injection should never exceed 10 c.cm. per minute in patients over fifteen years of age. Below that age the maximum rate should never be above 5 c.cm. per minute.

Novel Method of Lining Sanitary Drainage Ditches

Years ago at Panama, Gorgas treated drainage ditches by floating burning crude oil down them, thus not only killing vegetation and baking into a sort of earthenware the interior of the ditch but also actually lining the ditch with the unconsumed asphaltum deposited there. Many of these ditches still function perfectly. An improvement on this method is described by de Verteuil in a paper addressed to the Royal Society of Tropical Medicine and Hygiene and read at its meeting of June 2, 1922 (*The Lancet*, 1922, cciii, 5159, p. 131), dealing with the methods of Anopheles and malaria control put in force in the Brighton-La Brea Rural Sanitary District of Trinidad in 1920 and subsequent years. An unprecedented Anopheles invasion in 1920 led to the clearing of all grass for a radius of two hundred yards from about bungalows and building and the brushing, cleaning and drainage of all drains. It is not improbable that grass-cutting was valuable chiefly because it permitted the discovery and filling of small breeding places rather than that the grass itself was a breeding or harboring place for the Anopheles. Other breeding places were filled, drained, or treated with crude oil. Cleared drains were then burnt out with an oil mixture as in the Gorgas method. Later a mixture of liquid asphalt and sand was ignited and allowed to flow along the course of the open drains. When this cooled, there remained a smooth, impervious lining of asphalt and sand which resisted scouring by run-off and prevented the growth of vegetation in the ditch. The cost of lining surface drains by this method was fourteen to twenty cents per square yard, as compared with one dollar per square yard of concreting. In this connection it should be borne in mind that asphaltum is plentiful and cheap in Trinidad and that the life of an asphaltum-lined ditch is probably not as great as one lined with concrete.

Anthrax Hazard in Tanneries

That American hides and skins constitute a small anthrax hazard and that foreign hides and skins are a genuine danger is the belief of Smyth (*Am. Jour. of Hygiene*, 1922, ii, 4). It is his conviction that anthrax is a continuing menace to the workers in the receiving, soaking, and liming departments of the Pennsylvania tanneries and that all imported, non-packer hides and practically all goat skins should be considered as possible sources of infection. Anthrax has been isolated from certified hides and certified goat skins, and certified hides and goat skins have been responsible for human cases of anthrax. Dry hides have been responsible for more cases of anthrax than green salted hides. The exclusion of imported hides would lessen the incidence of human anthrax. Imported hides and skins should be thoroughly disinfected at ports of entry by either the Schattenfroh or the Seymour-Jones method. As a means of lessening the risk of infection and with the purpose of diminishing the liability of the more or less permanent infestation of soak-vats and their surroundings in tanneries, whitewashing should be liberally and frequently employed for all exposed wood, concrete or metal work about store rooms, soak-rooms and in the beam house. Adequate wash fixtures and shower baths with hot and cold water, soap, and towels should be provided for the exposed men. Towels, overalls, and workshirts should be provided for the workmen by the tanner and laundered at his expense after thorough disinfection. Towels, clothing, and shoes should never be taken from the tannery until they have been properly disinfected. Dry sweeping should not be permitted in tannery stock and store rooms.

Septic Sludge and Ankylostomiasis

That the use of septic tank effluents as manure is fraught with a certain amount of danger of infecting the soil with hookworm is evidenced by McVail's report (Ind. Jour. Med. Res. 1922, xxi, 4, p. 809) of the examination of 107 specimens of septic effluent taken from fifty-six dif-

ferent septic tanks. In nineteen of these effluents, living Ankylostoma eggs and larvae were found, while in fifteen samples, Ascaris eggs and in one those of tapeworm were observed. Most of the infected specimens were obtained from the tank direct but in one instance the effluent had passed through a trickling filter. Overworked tanks and those containing much sludge gave more larvae than those that were in good condition. Free chlorin apparently did not kill larvae.

Preservation of Rat Poison Baits

The addition of boric acid solution, 1 to 40 or carbolic acid solution one to forty to poison baits prevents their deterioration and apparently does not detract from their attractiveness for rodents.

Avicenna and Tuberculosis

There seems to be little doubt that many of the so-called modern medical beliefs are very ancient and that what we regard as recent discoveries were in reality known long, long ago. The report of Dinguizli of Tunis to the French Academy of Medicine (Gaz. d. Hôp., 1922, xcv, No. 53, p. 859) on the beliefs of Aviconna (A.D. 980-1037) regarding tuberculosis, tends to bear this out. Considering his time, the conceptions of this Arabian physician and philosopher are remarkable. He believed in the contagiousness and curability of tuberculosis and recognized its spread by contact of the sick with the well. His pathological observations were no less original and ingenious than are his epidemiology. Avicenna studied the ulcerations of the mediastinum, the pleura, and the lungs, the effects of tuberculosis of the lungs and its extension to the pleura and vice versa and he considered these tuberculous ulcerations as perforating and non-perforating. He recognized three evolutionary stages in true pulmonary phthisis; (1) a pre-inflammatory stage with an ulcerous eruption; (2) a more advanced stage, with an attack upon the deeper tissues and the breaking down of the ulcer; (3) the ulceration progresses, presenting the appearance of a true fistula and cavity formation. Avicenna counsels direct action upon the ulcer by means of a fluid containing much honey or by means of an infusion of red roses. At the same time he praises the absorption by the gastric route of great quantities of honeyed or sugared red roses. He recommends the milk cure, the milk of the ass or goat being considered best when it can be obtained uncontaminated. He also insists upon the cure by life in the open air and on the value of moral treatment.

Carbon Tetrachlorid Hookworm Treatment

Additional evidence of the superiority of carbon tetrachloride over thymol and chenopodium in the treatment of hookworm is furnished by the reports of the work of Hall in the Fiji Islands and Ceylon issued by the United States Department of Agriculture. Twelve thousand Fijis were successfully treated by this method without any ill effects.

The Diagnosis of Tuberculosis

Constantly, laboratory workers are seeking to perfect tests whereby the diagnosis of tuberculosis may be accurately made very early in the disease. Such labors will go far in assisting the clinician and will also be welcomed by the sanitarian since their application will afford additional means of removing the tuberculous from circulation and of returning a certain proportion of them to safe and useful lives. Landgraf (Boitr. z. Elin. d. Tub. 1, 1922) has experimented with the Wildbolz urine test at the Communal Tuberculosis Hospital in Hanover and obtained positive reaction in ninety per cent of the open cases, in eighty per cent of the closed cases and in forty-four per cent of cases which were clinically doubtful. Those results depend upon the assumed presence of certain specific antigens in the urine of the actively tuberculous, the demonstration of which may be made by the inflammatory skin reaction subsequent upon the subcutaneous injection. There are no general or focal reactions and while extraordinary care and minute attention to the details of the technic are absolutely essential to success, Stubbe's reports (Hospitalstidende, Feb., Mar. '22) seem to indicate that the test promises to be useful both in a qualitative and quantitative way, since there seems to be a direct relation between the extent of the skin reaction and the extent and activity of the disease process.

The specific fixation of complement by Bosredka's antigen is another test whose reliability is being confirmed. This test, first demonstrated by Bordet and Gengou is performed with the extract of tubercle bacilli grown on egg culture medium. Ichok (Par. Med xii, 1922, xxiii, 485) states that this is made by adding one liter of distilled water of neutral reaction to the yellows of twenty eggs. An emulsion is made, clarified with sodium hydroxide, diluted to seven liters, placed in Roux boxes holding from 50 to 150 c.c., and sterilized at 110 degrees C. for twenty minutes. Sterile, fourday cultures form the antigen. In nine hundred persons tested by this method negative reactions were constant in the non-tuberculous. Kempner (Deutch. Med. Woch. Ber., Mar. 24, 1922, xlviii, 12), had positive reactions in 82 per cent of 131 clinical cases of tuberculosis and 3.5 per cent in fifty-seven persons supposed to be in good health. In the use of Punches complement fixation test, Punch and Gosse (B. M. J. 3211, July 15, 1922, p. 79) report that after two years experience with this method it is their opinion that the test is positive before tubercle bacilli can be demonstrated in sputum, that it was positive in 98 per cent of cases with tubercle bacilli in the sputum and the test was negative in 98.5 per cent of controls consisting of healthy persons or persons suffering from disease other than tuberculosis.

Hereditary Syphilis

Leredde (Soc. d. Med. de Par., May 27, 1922, Par. Med. 1922, xii, 27, p. xii) states that according to data collected by him from the Statistical Office, hereditary syphilis including congenital debility and the like, kills at least forty thousand children in France yearly.

Bubonic Plague Treated with Neo-Salvarsan

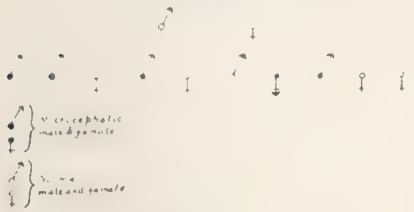
In a letter appearing in the British Medical Journal (3212, July 22, 1922, p. 127) Ram Mansoor reports the successful treatment of a case of bubonic plague by the intravenous injection of Gm.0.45 of neosalvarsan. This method should be borne in mind in situations in which Yersin's serum is not available.

Hereditary Microcephalus

According to Berstein's very careful study (Jour. of Hered. 1921, xiii, 1, p. 31) microcephaly or "pin-headedness," occurs about twice as often in men as in women, a fact which has long been one of the basic beliefs of the feminist party. In the family which supplied the clinical material for this report, out of ten children, five males and five females, there were four male and one female microcephalic persons. One of the microcephalic males is dead. The remaining three are respectively 34, 32, and 28 years, while the female is 23 years

old. All have the mental age of three years. The three boys' heads measure 15, 15½, and 16 inches in circumference. The girl is cross-eyed and all the children have the faces and bodily slackness typical of their condition. There is nothing in the lineal or collateral history of this family to account for the occurrence of these microcephalic children and apparently the only family factor reflecting degeneracy is alcoholism on the part of the father.

CHART I.—PORTION OF THE GENEOLOGICAL TREE OF THE SO-CALLED PIN FAMILY



During 1921 there were 12,500 deaths—one every forty-two minutes, night and day—and over 300,000 other injuries from automobiles in the United States. It is reported that the number of automobile accidents is increasing each year while the number of traffic accidents is generally decreasing. The movement for the education of children in accident prevention is a good one but should be expanded. This is a field of genuine public health work which should receive the active support of health workers in general and of health officers in particular.

Fetal Welfare

McIlroy, in a letter to The British Medical Journal of July 22, 1922, urged that the British Medical Association take some definite action on the question of fetal welfare at the annual meeting at Glasgow. He states that at present there is a vast amount of ante-natal mortality which cannot be estimated by any other method than that of mere guess work. "Until obstetricians urge the necessity for the registration or notification of abortions, no reliable information can be obtained as to the enormous wastage of child life. . . . The registration of illegitimate births has not given rise to difficulties, and now that V.D. conditions are liable to notification surely no objection can be put in the way of any honest endeavor to combat the fetal mortality which is known to be so great. Notification of abortions might to a small extent curtail criminal methods of child murder which are so widespread." It is his belief that a great number of the ante-natal and intra-natal deaths are easily preventable by the adequate training of students, midwives and post-graduates. Maternity hospitals should have an indoor and outdoor ante-natal or fetal welfare department, and facilities for the necessary bio-chemical and bacteriological investigations of ante-natal conditions. The life of the child should be cared for from the earliest conception of the ovum, and this attitude towards obstetrical problems will give results far beyond our present imagination, not only in ante-natal treatment but perhaps most of all in the prevention of intra-natal complications and operations.

The Cost of Dementia Praecox

Prof. G. M. Robertson in his presidential address before the Medico-Psychological Association of Great Britain at its annual meeting in Edinburgh on July 19 made the statement that "one mental disorder alone—namely, dementia praecox—probably costs the country more in maintaining its hopeless victims for life than any other single disease."

Antityphoid Vaccination in France

Dopter, in his annual review of the infectious diseases (*Par. Med.* xii, 22, June 3, 1922, p. 453) gives some very interesting data—particularly interesting to the sanitarian who recalls the extreme conservatism which the French exhibited to this valuable method of typhoid fever prophylaxis at the beginning of the war. He urges the need of the obligatory vaccination of those engaged in the care and nursing of persons suffering from typhoid fever and notes that of 1,739 nurses vaccinated at the Salpetriere since 1921, only one case of typhoid has been observed. The effect of the vaccination of the men called to the colors has been remarkable and in many parts of France it has been noted that the great bulk of cases has been in non-vaccinated women and in non-vaccinated boys not yet of military age. For example, at Havre there were 72 cases in 1921, of which 41 were males and 37 females. Of the males, 37 were less than twenty years of age and 4 had been mobilized during the war. Of these four, three had never been vaccinated and one only (a paratyphoid B by blood-culture) had received three injections. The author believes that so far as the civil population is concerned, it is preferable to advance anti-typhoid vaccination by persuasion rather than by obligation, since the fear of the vaccination reactions amounts almost to a "phobia." It is necessary to provide many centers for free vaccination and this is being done throughout France. It is felt that the campaign of persuasion will make more rapid progress if some other route of introduction of the vaccine than the subcutaneous is developed. The results obtained with Besredka's entero-vaccines in the hands of Vaillant and Nicolle seem to be encouraging. As another method of solution Lumiere and Chevrotier (*Comp. rend. des Sceances de l'Acad. des Sciences*, clxxiv, 16, April 18, 1922, p. 1080) set forth a method of anti-typhoid vaccination by scarification. They have demonstrated that guinea pigs vaccinated by twelve scarifications are resistant to the injection of massive doses of virulent cultures of the typhoid bacillus as well as paratyphoid A and B. The scarifications are not accompanied by any particular reaction other than that which may follow an insignificant skin traumatism. The method is reported to be efficaceous and to be particularly applicable in cases of cardiac or renal disease or any other condition which would contra-indicate the employment of the sub-cutaneous route or the use of entero-vaccines.

Practical Means of Controlling Botulism

The heat-resisting spores of the bacillus botulinus, according to the California State Board of Health (*Weekly Bul.*, 1, 19, June 24, 1922) are found practically everywhere. When they are sealed in a can or jar of food material which was not properly sterilized at the time of canning, the absence of air and the presence of food favors the growth of these organisms and a toxin of highly potency and extreme concentration is formed. It is recommended that all home-canned vegetables and meats be boiled for at least thirty minutes before tasting or eating, since even the least taste of this toxin may result in death. In home canning, the use of a steam pressure cooker will reduce losses from spoilage and protect the lives of subsequent consumers.

At the annual convention of the Baltimore and Ohio Association of Railroad Surgeons in Chicago a campaign to educate railroad employees regarding the danger of contagious and social diseases was initiated.

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The Upbuilding of the Public Health Profession

IN AN address delivered by John R. Freeman, President of the American Society of Civil Engineers, last June, occurs the following striking phrase. "The special mission of Science—the organization of knowledge, the discovery of natural law, and its expression in formulas—has been to bring safety and economy into the constructive arts."

Public health is one of the most vitally important of the constructive arts, but its development toward "safety and economy" falls far short of that attained by the arts of the engineer. There are two fundamental reasons why this must be the case. In the first place, public health deals with problems, biological and social, vastly more complex than those involved in the strength of materials or the flow of water through pipes, so that it is more difficult for the health officer than for the city engineer to define exactly the procedure which should be followed in a given case. In the second place when the engineer knows what ought to be done he has only to convince a small group of executives and his task is complete; while the health officer must not only convince the intelligence but alter the daily habits of the individual citizen if his objectives are to be attained.

The public health worker has therefore confronted a difficult and twofold task, the improvement of standards of practice in his profession and the mobilization of effective popular support. During the fifty years' life of the American Public Health Association this organization has held both these objectives more or less in view although in its early days the first was clearly dominant. A serious study of the situation, precipitated by vigorous discontent expressed at the New York meeting a year ago, led at Cleveland last month to a clarification of aims which promises to prove of capital importance. It has been decided that the improvement and standardization of health department practice and its protection against ignorance from within and political pressure from without is the primary task of this Association. In the words of the Committee on Reorganization, "The objectives of the Association should be the preparation, study, standardization and presentation of scientific public health procedures, and the best methods by which such knowledge can be given to the public and the expression to the public of professional opinion in regard to such procedures." The Report of the Committee on Municipal Health Department

Practice presented at Cleveland, reviewing the work of the eighty-three large city health departments of the country, and presenting standards for an ideal health department in a city of one hundred thousand population, is an example of the type of work to which the Association plans to devote itself in the future. In justice to the past, it must be remembered that earlier efforts of the Association along this line in standardizing procedures for the laboratory examination of water, milk, and air, for the control of steam pollution, and the disposal of municipal wastes, and for the isolation and quarantine of communicable diseases, have for years exerted an influence upon American health practice which is responsible for some of its most substantial achievements.

The Association will be enormously strengthened for work of this type by the changes made in its constitution and by-laws at the Cleveland meeting. While anyone interested in public health can be admitted as an associate member and anyone actively engaged in public health work as a member, the power to vote and to hold office in the Association is now limited to fellows, who must be professional health workers of established standing and who must serve two years as members before being eligible for election to fellowship. The technical sections of the Association (Public Health Administration, Laboratory, Vital Statistics, Sanitary Engineering, Food and Drugs, Industrial Hygiene, Child Hygiene, Public Health Nursing and Health Education and Publicity—the last two at present provisional sections) are given a larger direct share in the government of the Association; and it is provided that state societies affiliated with the American Public Health Association shall be accepted only when organized like the parent body primarily along professional lines.

The American Public Health Association, while thus devoting itself to perfecting public health practice, has not discarded the work of organizing popular support for the public health movement without making sure that this important task was somehow provided for. Experience has shown that such popular support, as manifested for example in the state tuberculosis associations, is far more effective if primarily a voluntary community movement, working with, but not dominated by, state and local officials. The A.P.H.A. has therefore turned to the National Health Council as representing not only the National Tuberculosis Association but the leading voluntary health agencies in general and asked for its aid; and the National Health Council at Cleveland adopted the following highly significant resolution:

That the Council undertake the definite and aggressive promotion of State Health Councils to be patterned after the National Health Council in those states where the member agencies and their local representative agree that this form of organization is the next step in a logical development toward health coordination.

This means that the National Health Council and its constituent members will go forward with the task of mobilizing popular support for the public health program, while the American Public Health Association is left free for its own proper work, the development of the constructive art of public health to the highest practicable degree of safety and economy. The very existence of a distinct profession of public health is often unrecognized by municipal officers who control the demand for sanitarians and by medical students whose choice of a career limits the supply. If the plans conceived at Cleveland are carried through to their logical conclusion the words "Fellow, A.P.H.A." will have a significance that will attract the able young men so greatly needed in this field and will ensure them the public recognition that alone can make their work productive.

Trends in Public Health Nursing

BOTH the Report of the Committee on Nursing Education appointed by the Rockefeller Foundation and the Report on Municipal Health Department Practice of the American Public Health Association, in discussing the organization of public health nursing favor the combination of bedside care with health instruction in a generalized district service; and in so doing they represent the obvious tendencies of the best public health nursing practice throughout the country. It has become abundantly clear that the work of a purely instructive nurse, valuable as it may be, is relatively ineffective when compared with that of a nurse who has rendered direct aid in time of need, particularly if through a generalized service she has touched the life of the family repeatedly and at many points. On every hand we hear of the change from a specialized to a generalized plan and of the combination of bedside and instructive service—almost never of changes in the opposite direction.

There is probably today sufficient evidence at hand to warrant voluntary public health nursing organization in shaping their policies, as rapidly and as far as circumstances may permit, toward a generalized district service. The future policy of the municipal nursing service is much less clear. Shall it continue to maintain a purely instructive specialized service in parallel with the work of the voluntary District Nursing Association as is the case in most cities today? Shall it abandon public health nursing to private agen-

cies? The first course is to some extent wasteful and inefficient—the second unthinkable. There remain still two other possibilities—the taking over of the whole work by the municipality—or the working out of a cooperative plan like that in force at Dayton, Ohio, by which municipal nurses and privately employed nurses are pooled in a common generalized service. The assumption of entire responsibility for all types of public health nursing, including the care of the sick on a visiting nurse basis, seems the logical outcome for the ultimate future and is recommended by the A. P. H. A. Committee for its ideal health department. Such a course, however, contravenes the principle held sacred in Massachusetts and in many other communities of the absolute separation of preventive work from the care of the sick and opens up the difficult question whether patients who are able to pay for nursing care should be given such care by the state without charge (as they are given education today); or, if not, whether it is possible for the city to offer a service free to the indigent and for cost to those able to pay. Furthermore in any given case it would be most unwise to transfer public health nursing from an efficient private organization to a municipal department, not prepared to administer it with approximately equal effectiveness. We shall need much patience and much open-mindedness and much unselfishness in order to find the right solution of these problems and the solution must temporarily at least be materially affected by local conditions in each community.

A Health Convention Month

OCTOBER was a busy month for the public health worker, with four different conventions in two different cities demanding his attention; and we have felt compelled to devote a large proportion of this issue of The NATION'S HEALTH to condensed first-hand reports of these meetings.

The Social Hygiene conference at Cleveland indicated normal and encouraging progress of the great movement for the hygiene of sex life. The Fifty-first Annual Meeting of the American Public Health Association at Cleveland was marked by a fundamental step forward in the reorganization of the Association along definitely professional lines, discussed more fully in our leading editorial. The American Red Cross convention at Washington was of interest from the standpoint of the public health worker for the stand made by Judge Payne and others against the attempt of reactionary elements to eliminate the constructive peace-time activities of the Red Cross and to reduce it to the pre-war basis from which Mr. Henry P. Davison built it into a great organization. It is probably too late now for the American Red Cross to carry out a broadly constructive campaign of public health education such as Mr. Davison conceived and such as the Red Cross societies of certain other countries have adopted with success; but we may at least hope from Judge Payne's pronouncement that the splendid service of the A. R. C. in the field of public health nursing will not be allowed to suffer any check.

The meeting of the American Child Hygiene Association in Washington was notable among the conventions of the month, for one event of far-reaching importance. The Child Hygiene Association and the Child Health Organization of America have agreed to combine their forces into a single great organization which shall deal with all the problems which relate to the health of the child from prenatal life to adolescence. The workers for child health have again set an example in cooperation to us all as they did when they established the Child Health Council which led to the formation of the National Health Council. The new Child Hygiene Association, among its many opportunities for service, is charged with the administration of the generous gifts of the Commonwealth Fund for the establishment of child health demonstrations in three communities; and the results of these experiments with the similar tuberculosis demonstration to be conducted by the Milbank Foundation should exert a compelling influence on the development of public health practice in the future.

The Care of Tuberculosis in Industry

THE MT. McGREGOR Sanatorium maintained by the Metropolitan Life Insurance Company for the care of its tuberculous employees has recently published statistics which indicate that of a group of patients discharged for an average period of three and a half years, 75 per cent were living and at work. This is a splendid and inspiring result. It is due, as in other similar cases, solely to one factor—the prompt beginning of treatment. At Mt. McGregor as elsewhere cases admitted in the incipient stage show admirable results (84 per cent living and at work) and cases admitted when the disease was far advanced show poor results (20 per cent living and at work). The secret lies in the fact that of 953 patients, 585 were admitted in the incipient stage, 333 in a moderately advanced stage and but 35 in a far advanced stage. Early treatment is made possible by regular annual physical examinations, by free sanatorium treatment, by a plan of sick-

ness insurance and by the fact that the patient who completes treatment is sure of returning to his job.

Such a system could scarcely be put in force by an industrial concern less financially strong and less socially minded than the Metropolitan. For the community as a whole, however, there is a significant lesson here. The community cannot, in the long run, escape the financial burden of tuberculosis. Will it not be more economical to work out a community plan for securing early treatment that will be 75 per cent efficient than to blunder along as at present with an efficiency of only 25 per cent?

The Progress of the Social Hygiene Movement

IT HAS been pointed out that the great work of the late Prince Morrow lay in the fact that he took a number of different tendencies—medical, moral, educational, and social—and united them in the single stream of influence which we call the social hygiene movement. Today there is a tendency, and a sound tendency, to carry out certain distinct phases of the campaign for sex hygiene through the activity of district agencies. Health departments should be primarily responsible for the direct control of venereal disease. The eradication of commercialized vice and the beneficent protective work which has developed so rapidly since the war should be centered in the local police departments and in the Department of Justice at Washington. The fundamental tasks of education in sex hygiene must be accomplished in our schools. Furthermore it seems clear that the activities of the specialist in mental hygiene will play a more and more important part in the campaign as time goes on and will perhaps constitute a fourth and more or less distinct phase of the movement as a whole.

A number of distinct agencies cooperating on a community plan for a common end is the essential for success. That some degree of success is already in sight would seem clear from the report coming in from venereal disease clinics all over the country of the relative decrease in early cases submitting themselves for treatment. We want of course to get every new case in the earliest possible stage; but when the proportion of early cases diminishes in face of a vigorous campaign for prompt treatment the facts suggest a real diminution in new infections. From England, where the social hygiene movement is in many ways as far advanced as our own, comes the news of significant decreases in the death rates from tabes dorsalis, general paralysis, and aneurysm while the death rate from syphilis has remained stationary in spite of a great increase in the birth rate which, since syphilis as a cause of death is so largely infantile, would have naturally increased the crude death rate from this cause. The reduction in combined death rate from these four causes taken together between 1915 and 1920 amounts to 31 deaths per million population, a gain of substantial significance. Even in France there are signs of a new attitude toward the social problems of sex hygiene which should bear substantial fruit. It is a time for the health officer and the social reformer and the teacher and the mental hygienist to take up the fight with renewed courage for the enemy is in retreat.

Common Sense in Sewage Treatment

THE little city of Lima, Ohio, has become a battleground upon which the attention of sanitary engineers from all over the country is just now focused. The State Department of Health ordered the treatment of the sewage of this city in order to prevent a nuisance created by its discharge into the Ottawa River. Plans for a trickling filter plant were prepared under competent advice and approved by the state authorities. At the last moment the city fathers were persuaded to submit alternative plans for treatment by the so-called "Direct Oxidation" method which plans now await the judgment of the State Department of Health.

It appears to be admitted that while the new method proposed will cost about two hundred thousand dollars less for construction it will cost over forty thousand dollars a year more for operation, involving an enormously increased burden upon the municipality. It is claimed that the effluent from the "Direct Oxidation" process will be better than that from the trickling filter which is theoretically possible although the fact that the "Direct Oxidation" process will require exceedingly careful operation and is untried in large scale practice (except at Allentown, Pa., where conditions are quite abnormal) makes it doubtful whether theoretical conditions will be realized.

The fundamental question, however, is one of engineering economics. There is urgent need for funds to carry on all sorts of really important and fruitful lines of public health activity. It seems therefore inexcusable to spend money for carrying sewage treatment to a point of refinement not called for by local conditions, and the opinion of the consulting engineers who recommended the trickling process and of the state department which approved it should be sufficient to indicate that the lesser degree of purification

involved will meet the needs of the Lima situation. We have often seen a high degree of purification forced on a community by state authorities; but it is unusual to find a city requesting from such authorities permission to spend its own money on ultra-refinements.

Furthermore, even where a high degree of purity is required the "Direct Oxidation" process appears from all present knowledge to constitute an unduly expensive method of obtaining the results. It is essentially a method of excess lime precipitation combined with electrolytic treatment. Excess lime precipitation has been used for many years and it is mainly upon the oxidation and sterilization effected by electrolysis that the "Direct Oxidation" process depends for its alleged value. It is an attempt to capitalize the mysterious efficacy which everything electrical exerts upon the lay mind, but the plain fact is that the production of oxidation by direct electrolytic action in sewage is a costly and relatively inefficient procedure. When the "Direct Oxidation" plant at Allentown gets into normal operation so that the Pennsylvania State Department of Health can study it we shall know more definitely what this process can and cannot do. Meanwhile municipal authorities would do well to cling to well established methods and to remember the old dictum that "an engineer is a man who can do for one dollar what any fool can do for two."

Sir Thomas Browne and His Skull

IN the editorial section of the April issue, THE NATION'S HEALTH noted with that satisfaction which was universal among medical litteratti, the family reunion which recently took place between the skull of Sir Thomas Browne and the other remnants of his anatomy. It now appears on no less authority than the Reverend Canon F. J. Meyrick,[1] that there is a doubt as to the authenticity of the skull which is now interred in the chancel of St. Peter's Mancroft, Norwich, England, beneath Bishop Pollock's beautiful inscription

O caput augustum, Petro custode sepulchri
Sit tibe pax; nomen vivat in urbe; vale.

The developments of recent investigations with regard to this skull are interesting in the extreme, particularly to those who appreciate the quaint philosophy of the author of the *Religio Medici.* In 1840, according to Meyrick, (the present vicar of the church where Browne was buried in 1682) a local antiquary with a highly developed "acquisitive complex," taking advantage of the opening of the chancel for a fresh interment, purloined the heraldic escutcheon from Browne's leaden coffin. This was the coffin plate which bore the oft-quoted Latin inscription:

Hoc locule indormiens corporis spagyrici pulvere plumbum in aurum convertit.[2]

Although denying the theft of this plate, which was returned to the church fifty-three years later by his executors, the antiquarian claimed that the lead of Browne's coffin had decomposed and that through the opening thus formed, he saw the skull and the "profuse and perfect," fine auburn hair of the occupant. In 1845, a skull purported to be that of Sir Thomas Browne was presented to the Norfolk and Norwich Hospital, where it was kept until recently in a silver casket presented by Sir William Osler, our own beloved authority on Browniana. A few months ago the Hospital authorities returned this skull to the church from which it was supposed to have come.

Whether this skull was orginally "acquired" by the antiquary who claimed to have seen it, or whether it was stolen by the sexton, a man whose reputation was above such an act, or whether it is a bogus skull palmed off on the hospital authorities as that of Sir Thomas, is not known. Neither is it recorded how Dr. Lubbeck, who made the original gift to the hospital, secured possession of it.

Meyrick doubts the authenticity of the long auburn tresses, some of which accompanied the skull to the hospital, because Brown was seventy-seven years of age when he died, but suggests that perhaps he was buried in his wig. After comparing the skull with fourth authentic portraits showing Browne with the noble, intellectual forehead of a scholar, he doubts if the low, receding, depressed forehead of the returned skull could ever have housed the great philosopher's brain, but he suggests that possibly the artists who made the paintings may have idealized their subject's brow.

But, after all, what difference does it make? It was the contents of Sir Thomas Browne's skull and not its boney casket which produced the *Pseudoxia Epidemica,* Urn Burial, and Vulgar Errors and which thereby made an impress for all time on philosophic medicine. The words of this great thinker have inspired many men and are as immortal as the songs of Homer. But what a pathetic irony there is in the wanderings of the skull of him who said

"To be knaved out of our graves, to have our skulls made drinking bowls and our bones turned into pipes . . . are tragical abominations escaped by burning burials."

1. Brit. Med. Journ., May 8, 1920, vol. 1901, p. 727

2. Sleeping in this grave, by the dust of his alchemic body he changes the lead to gold.

HEALTH IN INDUSTRY

Official Organ of the American Association of Industrial Physicians and Surgeons

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Industrial Hygiene Section of A. P. H. A.

AN INTERESTING situation in Ohio was brought out in the remarks of Dr. Wade Wright, chairman of the Industrial Hygiene Section of the American Public Health Association at Cleveland, October 18-19, in regard to the collection of data regarding industrial dispensaries. The Department of Health has asked the Ohio Association of Industrial Physicians to appoint a committee to work jointly with them, both in developing suitable forms for the collection of information and for so tabulating the results as to make the records of the greatest value both to the Health Department and to physicians in industry.

Dr. S. S. McCurdy argued for such improvements in differential diagnosis of occupational diseases as will make it possible to eliminate specific industrial factors in lowered resistance. Heart disease, for instance, he thinks will show a reduced rate when such cases are segregated and placed in occupations which will nurse the handicap instead of increasing it. Dental dispensaries have shown their value. Whole-time eye surgeons likewise will come and, properly employed, will prove to be a real economy.

An interesting analysis was made by Dr. Charles A. Swan of the causes of absenteeism among store workers. His statistics covered a period of six months, including both winter and summer months of absentee sickness among 1,500 store employees. Diseases of the upper respiratory tract predominated. Women were absent two and one-half times as much as men and married women 58 per cent more than single women. The employees of the store were rated according to physical examination into three classes: (A) those showing no physical defects; (B) those showing minor defects; (C) those handicapped to a degree that affected their vocational placement. In class B the absence rate was 12 per cent higher than in class A and in class C 42 per cent higher than in class A. In practically every case employees showing a physical defect even in minor degree were more susceptible to disorders of various kinds.

The discussion brought out the fact that absenteeism among executives has not received the attention it deserves. Here the adjustment of the load requires the highest skill of medical profession. In all groups psychic factors have much to do with absenteeism; it is notable that large percentages of affected employees get well over Monday, fewer on Tuesday and almost no recoveries are recorded on Saturday. It was brought out in the discussion that a very small percentage of industrial physicians are doing real research work in the plants.

A very valuable survey of the compensation aspects of industrial eye injuries was given by Dr. William Mehl of Buffalo. The difficulty of rendering absolute justice in matters of this kind is evidenced by the confusion among ophthalmologists themselves who have never been able to agree upon a satisfactory percentage ratio of visual loss. Certain states fix the standard of industrial blindness but the rating of partial losses is in confusion. Dr. Mehl himself offered the following table:

20	25	6[illegible]
20	30	12[illegible]
20	40	[illegible]
20	80	[illegible]
20	100	100

The discussion brought out particularly the discrepancies of the Ohio law governing compensation in visual injury. There is no compensation in Ohio for permanent loss for less than 50 per cent of vision. The difficulties encountered are further increased by the fact that all impairment is estimated on the basis of full correction, whether the victim can stand the full correction or not and regardless of whether he can work with them or whether he is financially able to fit himself with glasses.

The practical application of mental hygiene in industry was discussed by Dr. Frederick W. Dershimer. The mental causes of inefficiency are many and may be removed by the simplest measures of physical adjustment of working conditions or may require methods of psychoanalysis. It is particularly important in cases of injury to discover the first examination whether the individual is affected by anger or fright. In every case the disability is exaggerated by a grudge or a latent motive for revenge; it is not too much to charge the industrial physician with the necessity of helping the patient to effect a compromise of such complexes and nervousness. The physician who fails to practise mental hygiene fails to live up to his opportunities. Mental hygiene is properly the concern of industrial medicine.

Dr. H. J. Howk described the remarkable results obtained in the treatment of tuberculous employees of the Metropolitan Life Insurance Company at Mt. McGregor Sa[illegible]. Of 953 cases discharged since 1914 it was found December 31, 1921, that 75 per cent were at work, 10 [illegible] living but not work[illegible], 10 [illegible]

dead, and 5 per cent had been lost track of. The number of cases and percentages of cases at work classified according to their condition on discharge are shown in the accompanying table:

CLASSIFICATION OF TUBERCULOUS EMPLOYEES OF METROPOLITAN LIFE INSURANCE COMPANY DISCHARGED FROM MT. MCGREGOR SANITORIUM.

	Moderately Advanced	Incipient	Far Advanced	Total
Number of cases	333	585	35	953
Percentage at work	66		20	75

The results are primarily due to the systematic annual examination of all employees, to the fact that treatment is free, and a sickness insurance plan is in force, and to the further fact that the employee is assured of re-employment on recovery.

Dr. H. N. Cole presented a comprehensive discussion of industrial dermatoses and analyzed their direct causes, parasitic, mechanical, chemical, and physical, and their contributory causes such as heat, posture, and individual idiosyncrasy. The importance of thorough washing and change of clothing was stressed and special reference was made to the frequency of dermatosis among nurses due to individual susceptibility toward certain of the drugs which their duties require that they must handle.

The final afternoon session was devoted to addresses and demonstrations on school, home, and industrial lighting by M. Luckiesh and Ward Harrison of the Neal Research Laboratories in which the meetings were held.

A Teaching Device for Fatigue Elimination*

BY FRANK B. GILBRETH, LL.D., CHAIRMAN, COMMITTEE ON ELIMINATION OF FATIGUE IN INDUSTRY, SOCIETY OF INDUSTRIAL ENGINEERS, MONTCLAIR, N. J.

AS A fatigue committee of the Society of Industrial Engineers our work must progress along two lines. First, we must increasingly cooperate with others engaged in other types of work to prevent duplication of effort and gain speedily a body of cooperators who have the same general interests at heart. Second, we must develop units, methods, and devices that will be useful in the elimination of unnecessary fatigue.

The presentation of a new and simple teaching device specially designed to eliminate fatigue in the transference of skill or in studying the one best way to do work is especially timely due to the emphasis at the joint management meeting on the transference of skill. That the merits of the methods used by different workmen vary greatly is well known. Few managers, however, realize the extent of variation. In searching for the one best way to do work, we have not yet found any two workers who do their work in exactly the same way. In thirty-seven years of motion study we have never found a method of any worker that could not be improved upon by substituting in part the method of some other worker. We have never found a method synthesized from the best worker obtainable that could not be improved by the leisurely examination of micromotion records of such methods. It is by no means rare to find that the man with the best motions can perform his work in one-third of the average time of his fellow worker. The man with the quickest method often has also the least fatiguing method of work.

The inferior methods of many journeymen are handed down through generations of apprentices who little realize their resulting handicap and who study and try to imitate whatever is taught them regardless of its efficiency while the few pupils of the most expert do not necessarily have the opportunity to acquire the special skill or the super-skill of the expert. It is less than four hundred generations of apprentices back to the cave man, less than two hundred to the stone age, less than a score of generations to many journeymen who could not read and write, and less than one generation to the recording of the one best way and the precious skill of the super-expert.

The device, called the "Magster," for short, signifying magazine filled with stereographs, is an inexpensive stereoscopic viewer of magazine rolls of moving picture photographs on paper of time and motions. Its cost is trivial. It permits all investigators and learners alike to see the super-expert's methods in infinite detail in a leisurely manner; it permits maximum transference of skill from the super-expert without personal contact, it permits interchange of demonstrations of skill from all parts of the world without the presence of the super-skilled demonstrator. No longer is there any more excuse for the misled apprentice and learner and the perpetration of inferior designs of tools, unnecessary-fatigue-causing-work places, and inefficient methods of work than there is excuse for perpetrating inferior strains of horses, cows, sheep, pigs, and hens.

The demonstrations of the one best teacher are as useable after he passes away as when he lives at his best. Such a viewer permits the slowing down of motions made at the speed of practise to that of still pictures. It presents to the learner not merely moving pictures but consecutive snapshots showing the elements of causes of skill. Fast motions and slow motions are not alike as to relative speed, relative positive, and negative acceleration, path, direction, muscle rebound, or automaticity. This device permits the capture of complete details of methods and also the errorless times of their elements in three dimensions by means of a stereoscopic cinematograph, and permits also the viewing of the permanent printed picture on paper with a wide angle stereoscope showing a dozen or more pictures for comparison at the same time without winding the paper record. Alongside each picture is the reason and the proof of the features contained therein showing its excellence. The symbols of therblings, or elements of motions, illustrated by the records may be entered on the margin and the learner stimulated by questions. This also insures suggestions for improvements and adaptation to each individual learner for greatest output and with least fatigue, for even the method of the best man obtainable is not perfect. It also allows a chance for extended discussion during the demonstration.

The Magster is sufficient and complete for the recording of the elements of motions and for the making or comparing of simultaneous motion charts. Other devices made from the

*Read at meeting of the Society of Industrial Engineers, New York City, October 18, 1922.

original micromotion negative, from which the paper prints were made, permit viewing the records as stereoscopic moving pictures either on paper or on film. The device is usable by those who have not the super-experts to demonstrate, or apparatus available, or the micromotion technical experience or knowledge to capture and record in complete detail the best way to do work. The Magster is to the super-expert demonstrator of the one best way to do work what the graphophone is to Kreisler or Caruso. It puts the long years of research, development and practice of micromotion study within the reach of the non-technical foreman and worker, the apprentice, and the beginner. As a result, the Magster now makes it no more necessary for the one who wishes to see the one best way to do work demonstrated to make the record, than it is necessary to make a graphophone record in order to use such a record.

This device is offered to the engineering and teaching professions, but first of all to the fatigue committee, without patents, with the hope that each community, school, and library will have records of the super-skill of the best demonstrator obtainable regardless of where he may be and regardless of whether he is living at the time that his super-skill is examined and imitated. Thus, it is now possible to present to the apprentices and workers of the world, the chance to see the methods of the best workers available, in their chosen life work, which is a step toward their acquiring first habits and automaticity in method of the best way to do their work.

Knowledge of the one best way to do work disseminated throughout the world will help reduce the gigantic preventable waste which has been evaluated by this society and by Mr. Williams, engineer of the National Safety Council, as averaging more than twenty cents a day for each worker in the United States. The members of this society and the knowledge and the apparatus are ready to superstandardize the one best way in all trades. It will be interesting to note how long it takes for the country to overcome its mental inertia and to discard its present ridiculous customs and traditions of teaching its people their life works.

Great Britain's Place in Fatigue Elimination*

By HENRY J. SPOONER, C.E., M.I.Mech.E., F.G.S., Member of the International Committee on Industrial Fatigue, London, England.

THE scientific study of the laws governing the healthy employment of the human mind and body in industry was strangely late in its development in Great Britain, although it was in this country that the industrial revolution had its first beginnings, and industrial development was most rapid, and also that geographical, social, and political conditions combined to intensify the evils arising from the neglect of scientific study. Even in the long parliamentary battles fought during the nineteenth century upon the specific question of the reduction of the daily hours of work, battles fought between the advocate of a *laissez faire* policy followed in the supposed interests of production and national wealth on the one hand, and those pressing the claims of human charity upon the other, no appeal was made by either side to the laws of physiology or to the test of experiment which might very rapidly have shown that a reduction of hours would have increased industrial output no less than human happiness and health.

It was not until 1893 that Messrs. Mather and Platt of Manchester conducted their well-known pioneer experiment on this subject. Mr. Mather (later, Sir William Mather), to whose initiative this work was due, primarily endeavored to show that "work before breakfast" was open to economic as well as social objections. The working day during the two years' experimental period, was accordingly shortened permitting work to begin at 8 a. m. instead of 6 a. m., and the breakfast interval was abolished. The experiment showed that the reduction in hours from 54 to 48 hours a week caused an increase in production and a decrease in lost time.

The results of this work were brought to the notice of the government in 1894, which upon the basis of the Manchester experiment, introduced the 48-hour week at Government arsenals and shipyards. The results gained by Messrs. Mather and Platt did not, however, lead to any general adoption by engineering or other firms of the analogous methods or to any organized study of the subject by the Government or private firms.

The first steps in the direction of a systematic study of industrial fatigue in Great Britain were taken in 1913 when the Home Office accepted an offer by Dr. A. F. Stanley Kent, Professor of Physiology at Bristol University, to undertake a series of experiments on behalf of the department in connection with industrial fatigue, especially the determination of suitable physiological tests for the measurement of fatigue,[1] subject to a financial contribution being made by the Home Office towards the cost of providing apparatus. In the same year the British Association at its annual meeting appointed a research committee for the purpose of investigating fatigue from the economic standpoint.

The Great War brought into being the health of munition workers' committee under the Ministry of Munitions. The distinguished and influential committee under the chairmanship of Sir George Newman, K.C.B., M.D., F.R.C.P. was appointed in September, 1915, by the Right Hon. David Lloyd George, M.P.

The committee was invited "to consider and advise on questions of industrial fatigue, hours of labor, and matters affecting the personal health and physical efficiency of workers in munitions factories and workshops. The committee immediately commenced to energize and arranged to sit and take evidence not only in London but also in Birmingham, Sheffield, Newcastle, Glasgow, Manchester and Coventry. Special arrangements were also made for taking evidence at Woolwich, and witnesses were heard representative of employers, workers, factory inspectors, and other interested persons.

Having regard to the urgency of many of the problems involved by their terms of reference, the committee decided that it was desirable that they should submit their views and recommendations in regard to particular matters in separate memoranda rather than that they should defer

*Read before the American Society of Industrial Engineers at the New York Meeting October 18, 1922.

[1] Interim Report on an Investigation of Industrial Fatigue by Physiological Methods, 1915 (Cd 8056). Price 5d. Second Interim Report on an Investigation of Industrial Fatigue by Physiological Methods, 1916 (Cd [illegible]). Price 3s 6d.

making any report until their investigations were completed. In accordance with this decision, the committee submitted to the Ministry the following twenty-one memoranda, which were in due course published and placed on sale. The prices given are net and do not include postage.

Official Memoranda

No. 1. Sunday labor (Cd. 8132), 1d.
No. 2. Welfare supervision (Cd. 8151), 1d.
No. 3. Industrial canteens (Cd. 8185), 1d.
No. 4. Employment of women (Cd. 8185), 1½d.
No. 5. Hours of work (Cd. 8186), 1½d.
No. 6. Canteen construction and equipment, (Appendix to No. 3), (Cd. 8199), 4d.
No. 7. Industrial fatigue and its causes (Cd. 8213), 1½d.
No. 8. Special industrial diseases (Cd. 8214), 1d.
No. 9. Ventilation and lighting of munition factories and corkshops (Cd. 8215), 1½d.
No. 10. Sickness and injury (Cd. 8216), 1½d.
No. 11. Investigation of worker's food and suggestions as to dietary (Second appendix to No. 3, (Cd. 8370), 1½d.
No. 12. Statistical information concerning output in relation to hours of work (Cd. 8344), 1½d.
No. 13. Juvenile employment (Cd. 8362), 1d.
No. 14. Washing facilities and baths (Cd. 8387), 1½d.
No. 15. The effect of industrial conditions upon eyesight: (Cd. 8409), 1d.
No. 16. Medical certificates for munition workers (Cd. 8522), 1d.
No. 17. Health and welfare of munition workers outside the factory (not published).
No. 18. Further statistical information concerning output in relation to hours of work with special reference to the influence of Sunday labor (Cd. 8628), 1917-18, 3d.
No. 19. Investigations of workers' food and suggestions as to dietary (Second appendix to No. 3). Revised edition (Cd. 8798). Session 1917-18, 2d.
No. 20. Weekly hours of employment (Supplementary) (2d. to memorandum No. 5). Cd. 8801). Session 1917-18, 1d.
No. 21. Investigations of the factors concerned in the causation of industrial accidents. Cd. 9046). Session 1918, 6d.

An interim report, entitled "Industrial efficiency and fatigue," was also published (Cd. 8511), (1s. 3d) in February, 1917, in which was set out the results of a number of investigations which had been made by the committee. The studies included were: (a) Industrial fatigue and its causes (reprint of memorandum No. 7); (b) output in relation to hours of work (reprint of memorandum No. 12); (c) the comparative efficiencies of day-work and night-work; (d) the causes and conditions of lost time; (e) incentives to work, with special reference to wages; (f) report on the health and physical conditions of male munition workers; (g) inquiry into the health of women engaged in munition factories.

In 1918, the committee published its final report entitled "industrial health and efficiency" (Cd. 9065). This blue book of 180 pages reviews in a most useful and readable way the whole of the committee's activities from September, 1915, to the end of 1917, when the committee was disbanded. These pioneer researches into the effects of long hours of work upon output, upon accident incident, and upon sickness and lost time in munition factories—which were necessarily limited to the war conditions of industry, and to the making of munitions—were productive of results sufficiently striking in themselves, but still more so in their potential application to industries generally.

On the disbandment of the health of munition workers' committee at the end of 1917 the Medical Research Committee and the Department of Scientific and Industrial Research, with the active encouragement of the Home Office, decided to form a committee to investigate the subject of industrial fatigue on more comprehensive lines by embracing all classes of factories within its scope. A research board was accordingly appointed in July, 1918, by the Medical Research Committee, now the Medical Research Council, and the Department of Scientific and Industrial Research jointly with the following terms of reference: To consider and investigate the relations of the hours of labor and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers; to suggest problems for investigation, and to advise upon schemes of research referred to them from time to time by the Medical Research Council, undertaken to promote better knowledge of the relations of hours of labor, and of other conditions of employment, including methods of work, to functions of the human body, having regard both to the preservation of health among the workers and to industrial efficiency; and to advise the council upon the best means for securing the fullest applications of the results of this research work to the needs of industry.

The present board consists of the following distinguished members: William Graham, L.L.B., M.P., and Member of the Medical Research Council, chairman; R. R. Bannatyne, C.B., Assistant Secretary, Home Office; C. J. Bond, C.M.G., F.R.C.S.; W. L. Hichens, chairman, Messrs. Cammell, Laird and Co., Limited; Sir Joseph Petavel, K.B.E., D.Sc., F.R.S., Director of the National Physical Laboratory; Sir Charles Sherrington, G.B.E., Sc.D., P.R.S., Professor of Physiology, University of Oxford, who acted as chairman of the board at its inception, but resigned the position on becoming president of the Royal Society; E. H. Starling, C.M.G., F.R.S., professor of physiology, University of London; Mona Wilson, J.P.; D. R. Wilson, H. M. Inspector of Factories, Secretary.

To secure adequate scientific supervision of research and criticism of the board's work, the Medical Council formed the following four special scientific committees: (1) Committee on industrial health statistics, chairman, Major Greenwood, M.R.C.P., Medical Officer of the Ministry of Health; (2) Committee on the physiology of muscular work, chairman, E. H. Starling, C.M.G., F.R.S., Professor of Physiology, University of London; (3) Committee on physiology of the respiratory and the cardiovascular systems, chairman, Leonard Hill, M.B., F.R.S., Director of Applied Physiology, National Institute for Medical Research; (4) Committee of Psychology, chairman, Henry Head, M.D., F.R.S., member of the Medical Research Council.

The following reports have been issued from 1919 to August, 1922, and can be purchased from H. M., Stationery Office, Imperial House, Kingsway, London, W.C.2. (the net prices given do not include postage).

No. 1. The influence of hours of work and of ventilation on output in tinplate manufacture, by H. M. Vernon, M.D., (1919; price 6d).
No. 2. The output of women workers in relation to hours of work in shell-making, by Ethel E. Osborne, M.Sc. (price 6d; out of print).
No. 3. A study of improved methods in an iron foundry, by C. S. Myers, M.D., Sc.D., F.R.S., 1919 (price 2d).
No. 4. The incidence of industrial accidents upon individuals, with special reference to multiple accidents, by Major Greenwood and Hilda M. Woods; 1919 (price 6d).
No. 5. Efficiency and fatigue in the iron and steel industry, by H. M. Vernon, M.D., 1920 (price 3—).
No. 6. The speed of adaptation to altered hours of work, by H. M. Vernon, M.D., 1920 (price 1/—).
No. 7. Individual differences on output in the cotton industry, by S. Wyatt, M.Sc., 1920 (price 6d).
No. 8. Observations on bobbin-winding, by S. Wyatt, M.Sc., and H. C. Weston, 1920, (price 1s. 6d).
No. 9. A study of output in silk weaving during winter months, by P. M. Elton, M.Sc. 1920 (price 2s. 6d).
No. 10. Preliminary notes on the boot and shoe industry, by J. Loveday, B.A., and S. H. Muro (price 1 6d).
No. 11. Preliminary notes on atmosphere conditions in boot and shoe factories, by W. D. Hambly, B.Sc., and T. Bedford, 1921 (price 3/—).
No. 12. Vocational guidance, by B. Muscio, M.A., 1921 (1 —).
No. 13. A statistical study of labor turnover in munition and other factories, by G. M. Broughton, M.A., E. M. Newbold, M.A., and E. C. Allen, 1921 (price 3 —).
No. 14. Time and motion study, by E. Farmer, M.A., 1922 (2/—).
No. 15. Motion study in metal polishing, by E. Farmer, M.A., assisted by R. S. Brooke, M.A. (price 2 —).
No. 16. Three studies in vocational selection: A., The psycho-physiological capacities of hand compositors, by B. Muscio, M.A., B., The measurement of strength (with reference to vocational selection), by B. Muscio, M.A. C., Physical measurements in a confectionery factory, by E. Farmer, M.A., 1922 (price 1s. 6d).
No. 17. An analysis of the individual differences in the output of silk-weavers, 1922 (price 1s. 6d).
No. 18. Two investigations in potters' shop, 1922 (2s. 6d).
First annual report of the Industrial Fatigue Research Board to 31st March, 1920 (price 6d). This report gives an account of the origin of the board, the methods of research employed, and the investigations undertaken.
Second annual report of the Industrial Fatigue Research Board, to 30th September, 1921

(price 1s. 6d.). The most valuable feature of this report is an analysis of the published work of the board, consisting of the above 18 reports.

As is well-known, in 1920-1921, the Government of Great Britain was faced with the stupendous problem of balancing the nation's finances, with unprecedented unemployment and the burdensome, crushing income-tax of six shillings in the pound, and drastic economies had to be resorted to with the object of reducing the taxation that was and is strangling industrial life and enterprise. So, at the end of January, 1921, the Industrial Fatigue Research Board received a provisional notice from the Medical Research Council that the Treasury, having regard to the financial condition of the country, and to the prevalence of unemployment and short-time employment, could not contemplate the continuation, after March 31 of the financial provision which had previously been made for the work of the board, and that they requested that steps should be taken by that date to transfer any important work in hand to the independent support of industrial or other voluntary associations. This proposal which the Board had had no previous reason to expect, appeared to them likely to have most unfortunate results, and they felt it to be their duty to make the strongest representations to the Council against the abrupt termination of any parts of their work without inquiry into their value to industrial health and economy, or, again, into the practical possibilities of voluntary support being forthcoming from industries or elsewhere at short notice at that time. The Board is glad to recognize that the steps which have been taken by the council to insure the continuance of its work has not only enabled it to avoid the sacrifice of many data already collected, but will permit it to undertake fresh investigations, though on a more restricted scale than previously.

In the concluding paragraphs of the board's last published annual report (the second, to September, 1921), the board's views as to the cooperation of the industries with the board are given as follows: As the work of the board proceeds, however, new fields of investigation are continually opening out, which lie beyond both the scope and present resources of the board. If these are to be adequately explored, the board thinks it essential that the industries should expend their cooperation with the board, by agreeing themselves to assume partial responsibility for the supervision and financial support of the industrial side of the work.

The board is unwilling at the present stage to formulate any detailed schemes dealing with the method and extent of cooperation. They suggest, however, that for the successful development of the work on the industrial side due regard must be had to the following considerations: First, the board is disposed to think that industries themselves should have a full and even predominant share in the supervision of such investigations, and in deciding upon the problems to be studied. As already stated, the board is concerned primarily with the acquisition of scientific knowledge; in the practical application of such knowledge, industries are the best judges of their own needs. Secondly, the board regards it as important that responsibility for initiation and prosecution of the work should be shared, so far as possible, equally between employer's and workmen's representatives acting together.

Lastly, the board feels that, in general distinction from technical and material industrial research, problems arising in its work have often a common interest to more than one particular industry, so that economy as well as greater opportunities might be secured by adopting a wider unit of grouping, and by cooperation with groups of industries having certain features in common rather than with each such industry separately.

The ever-growing importance of time and motion study introduced and developed by the Gilbreths, was happily recognized by the board from the commencement of the investigations, as will be seen from the following extract from the first annual report:

The results of the inquiry into the methods adopted at the Derwent Foundry Company, an account of which is given in report No. 3, appeared to the board to be so significant that it resolved to start an investigation, having for its object the experimental introduction of motion study methods into an industrial establishment, combined with a careful measurement of the results. For such a result, the first step necessary was obviously to secure the goodwill of some employer, and after some unsuccessful attempts the board was fortunate enough to obtain the permission of Messrs. James Pascall and Sons, Ltd., confectionery manufacturers of London, to make use of their two factories for the purpose. In April, 1919, Mr. Eric Farmer, M. A., was appointed to take charge of the investigation, and Mr. C. Carlile has recently joined him as assistant investigator.

The processes selected for experiment are "dipping" (i.e., dipping almonds into melted sugar), and "bottling," both of which are manual and depend entirely upon human effort. A long time must necessarily elapse before the success of the method can be definitely gauged, but from a preliminary report submitted in October, 1919, it appears that satisfactory progress is being made, and that even at this early stage increase of output has resulted.

Motion study is closely allied to vocational selection, and an investigation bearing on the latter has recently been carried out by Mr. Farmer; measurements of the hands and fingers of over one thousand girls have been taken with the object of finding whether dexterity in a given process is due to any special characteristics.

A report by Mr. Farmer summarizing this work (No. 14) and containing a complete bibliography was duly published. In addition, research on this subject has been undertaken by Mr. Farmer, assisted by Mr. A. S. Brooke, M.C., M.A., and Mr. C. Carlile, B.A., in the factory referred to above, and in the Sheffield Flatware Company, Ltd., cutlery manufacturers, and the results have been published. (Report No. 15.)

In reply to an inquiry as to what reports the Industrial Fatigue Research Board have in preparation, the Secretary of the Board, D. R. Wilson, Esq., H.M. Inspector of Factories, wrote that several reports were in course of preparation by his board which would be published in due course. One of these deals with certain factors in accident causation, two of them with atmospheric conditions in certain textile processes, and the fourth with values of efficiency in cotton weaving.

It is explained in the second annual report of the board that the following received financial support from the board during the year 1921: Research on effects of work on pulse variations and wink reflex (conducted by Dr. B. A. McSwiney, M.B., and Mr. W. D. Hamley, B.Sc.); research on respiratory metabolism (conducted by Dr. A. D. Waller and Miss G. de Decker); research on estimation of respiratory quotient in women (conducted by Professor Winifred Cullis, D.Sc.).

As has been pointed out a large amount of important work in fatigue elimination covering a wide range of researches has been carried out by the government of Great Britain; and in a general way the authorities concerned are fully alive to the economic and humanitarian importance of the work; but its ever-increasing range naturally tends to limit what can be done in the investigation of any particular aspect of fatigue, no matter how important it may be. This must

surely be the reason why so little has been done in any country to subdue those noises which have been carelessly allowed to accompany the advances of civilization,—noises that cause immeasurable pains and discomforts, and represent in their ultimate effects the loss of undreamt-of millions of money. For noise, particularly when accompanied by vibrations imparted to the body, is most harmful to the human machine by its corroding and decaying effect on the nervous system. We are told by Sir Robert Hatfield that what the world loses through rust and decay of ferrous metals amount to about £500,000,000 a year, how much greater must the loss be due to disease and waste of life caused by harmful noise! The campaign against avoidable noise has been rapidly growing, however. Industrialists in increasing numbers are considering their own particular problems, and experiments have recently been made on the rolling stock of the London tubes with the object of reducing the deafening, nerve-racking roar, rattle, and vibration of the carriages that make conversation impossible and rob us of our energy and strength. As to the street trams that run on rails with grinding clamor, their further extension in any civilized country should be damned from the standpoint of harmful noise and vibration alone, and the sooner they are scrapped and replaced by rubber-shod dirigible vehicles the better for suffering humanity. Not a little of the noise of vehicles running on rails is due to corrugation of the rails which is apparently caused by the moving load generating stresses on the surface of the rails in excess of the elastic limit of the material, and the prevention of this is a puzzling problem.

In conclusion, I venture to submit that there is no aspect of fatigue elimination that so loudly calls for the attention of any government as noise; and that in its reduction or elimination—and in the solution of allied problems—there is the widest scope for exercising the genius of physicists and scientific engineers.

Finding and Caring for the Tuberculous Employee*

Industry Should Not Only Discover Disease But Should Give Treatment

By JAMES A. BRITTON, B.S., M.D., Medical Director, International Harvester Company, Chicago, Ill.

ABOUT fifteen years ago agitation was begun to control the spread of tuberculosis among employees of industrial establishments. It was said on so-called good authority that pulmonary tuberculosis was largely due to occupation, and that while the number of cases was not known in any industry, it was felt that the number was large and steadily increasing. From this agitation many special investigations were started by social organizations, labor unions, insurance companies, and by the management of large industries. Previous to this time, except for employment in certain branches of railroad service and such municipal departments as that of fire and police, a routine physical examination of applicants for employment in civil occupations was unknown.

The special investigations undertaken showed that there was to be found among those working in almost every industrial group cases of open active pulmonary tuberculosis. The finding of those cases of tuberculosis gave rise to the same two questions that always occur in relation to the discovery of a case of any infections or contagious disease,—(1) what shall be done with those already inflicted, and (2) what shall be done to prevent others becoming infected?

The next few years saw the establishment all over the country of sanatoria built or subsidized by private organizations, labor organizations, insurance societies, and industrial groups. During the same period in order to prevent the admission of new cases of active tuberculosis to industrial groups, the practice of making physical examinations of all applicants for employment was recommended and established in a great many places. With the establishment of a physical examination for all new employees, one of the constant sources of new cases of tuberculosis was largely eliminated; the problem, however, of discovering the cases of tuberculosis which developed among those already employed was not so easy. To one who has not had experience in dealing with the various problems which arise between employer and employee, it might seem that this difficulty could be easily handled by simply arranging for periodic physical examinations of all those employed. There has been so much publicity and argument on the subject of periodic physical examinations for every one that there is no necessity for discussing the advantages of this plan here. It is conceivable that in certain communities or in certain groups a plan of periodic physical examination for everyone could be worked out so as to be mutually beneficial and satisfactory. But under existing conditions, I firmly believe that such a plan cannot be established except in a partial and incomplete way.

For example, it is a simple matter for one of the large industrial concerns to say to its employees that we will provide a physical examination for every employee and if anyone is found who has tuberculosis we will provide sufficient funds to guarantee adequate sanitarium care until such time as he is able to resume his work and will guarantee him employment when this time comes. A large industry employing five, ten, or fifty thousand employees could make this sort of a proposition without piling up an item of expense which would be more than a very small percentage of its payroll. We must remember, however, that for every large industry having five thousand or more employees, there are really hundreds of small establishments having less than one hundred employees and such an establishment would find the expense incident to the care of a single case of tuberculosis a very large percentage of its payroll; in fact so large as to make consideration of such a plan prohibitive.

Any method of supervising those already employed, which means throwing out on the community those who are unable to work, will never solve the problem. On the other hand, any plan of supervising the health of any group of employees must carry with it some plan of adequate care of those found suffering

*Written for the annual meeting of the National Tuberculosis Association, Washington, D. C., May 2, 1921.

from disease. It is granted that it is possible to adopt and carry out almost any health conservation plan in any industry providing the industry is large enough. The same thing is not true of the individual small industry, but it would be true if, instead of the individual small industries attempting to operate a health plan of its own, there were a sufficient number of small industries which were willing to pool their health interests. While there are a number of large concerns in which health conservation plans have been established which provide for periodic inspections or examinations of employees and study and correction of all unhealthful conditions or places, in the great majority of industries this work falls far short of the ideal, and is generally incomplete and unsatisfactory.

In any large industry certain jobs are found to have a considerable higher rate than that for the entire industry. Fortunately these jobs are few. Likewise certain industries are found to have higher rates than the average. Unfortunately, there are occupations where cases of tuberculosis can be definitely tied up to the job as a causal factor. This is particularly true in certain types of grinding which use the old fashioned large wet grindstone, produces a fine, sharp, cutting dust which causes gradual and permanent changes in the lungs, making a condition particularly favorable to the development of the lung infection. Incidentally, the prognosis for the arrest of the disease which has developed in this type of case is very poor.

Drink Cause Eliminated

One of the complicated industrial causes of tuberculosis was associated with drinking; a few years ago it was customary to permit employees of steel mills, foundries, forge shops, and employees of other hot or dusty jobs not only to drink as much liquor as they wished outside of the job, but to carry liquor into the workshop. The combination of a hot job and too much liquor resulted in disturbances in digestion which undermined resistance and made conditions right for the development of tuberculosis.

The care of the tuberculous employee is no different from the care of any other tuberculous member of the community. While it is possible to get as good results by treating a patient in his own home as it is in some sanatorium, it has been my experience that an arrest of the disease sufficient to warrant returning to work can be obtained in much less time and in a much higher percentage of cases if the patients have a few months' sanatorium care than if they are treated at home. In my opinion, then, it is of the utmost importance if any industry wishes to do aggressive, effective work in the rehabilitation of its tuberculous employees to provide for sanatorium care.

While I believe that tuberculosis like any other communicable disease is in a large measure a community problem and that care of cases of tuberculosis should be provided for in public institutions at the expense of the general community, the handicaps under which even the best public sanatoria labor at the present time make it rather difficult to persuade the average employee of an industrial concern to accept care at one of these public institutions unless he is very ill. Because the average well run private sanatorium does not have to contend with the same handicaps as most public institutions, the service to the individual patient is usually more satisfactory and the period of treatment much shorter.

The so-called industrial tuberculosis work was begun in some instances as a special piece of health work. The original propaganda leading up to this work emphasized the importance of special plans for discovery of cases, special personnel, and special provision for treatment of cases. It is impossible in industrial work to pick out one special phase of medical work and emphasize it without consideration of other diseases and other medical problems. While, for example, heart disease has not had anything like the special consideration by industrial physicians as has been given to tuberculosis, there is reason to believe from the standpoint of number of cases and economic loss that heart disease among industrial employees is a greater problem even than that of tuberculosis. In my opinion, the plan for the discovery of cases of pulmonary tuberculosis among employees should be only a part of some comprehensive health supervision scheme. The only thing that stands in the way of developing a routine periodic thorough physical examination is the necessity for some comprehensive plan for taking care of those physical handicaps discovered when such examinations are made.

Shop conditions, and by this is meant both the sanitary conditions of the working place and the hazards of the job, are in most industries being rapidly and systematically checked and unsatisfactory conditions are being eliminated or corrected. This is the usual thing found in the modern progressive industry. The modern industrial physician's office not only keeps track of every accidental injury, and how, when, and where it occurred, but the same system of records is maintained for every case of illness developing among the employees. In the same manner as they point to defective machines of the lack of safety appliances, such records point out the unsanitary work room and the dangerous job.

In order to do a satisfactory job in finding and caring for the tuberculosis employee, it is necessary to have a plan, an equipment, and a personnel which can give not only satisfactory service to the case of tuberculosis, but can also give this same service to an employee regardless of whether he has this disease, or disease of the kidney, heart, or nervous system, or any other disease which might interfere with or stop his work.

Early Discovery Essential

There are a great many problems which have come up in the field of industrial medicine which have caused considerable divergence of opinion regarding the limits of this field. There can be no difference of opinion, however, regarding some of the basic essentials. Both for the sake of the employee and the industry in which he is employed, it is necessary that his tuberculosis as well as his other diseases be discovered when there is some chance of arrest or cure. In order to do this, it is essential that the medical personnel in an industrial establishment be made up of well trained physicians, surgeons, technicians, and nurses. The day is past when the "first aid boy" will serve the purpose. In addition, the industrial physician's office must be equipped for thorough and accurate work.

The industrial physician who serves the community best, will not have much to do with the treatment of individual cases. He must be trained and equipped to recognize conditions and causes and do this fairly accurately. Recognition of tuberculosis must be a part of his job, not all of it. While he will not treat many cases, he must know what is good treatment and where it can be had and the procedure necessary to get it.

Any comprehensive plan must include a satisfactory plan for treatment. Simply finding and excluding those having disease from employment will not solve the problem.

Industrial Morbidity and Accident Records*

DILIGENT inquiry among a large number of progressive firms having medical departments reveals the fact that there is as yet no comprehensive and coordinated effort in record keeping among such departments. The Committee, therefore, undertook to formulate a logical grouping of the different items which it feels must be considered in an intelligent analysis of morbidity and accident data. The suggested items serve as the minimum amount of information necessary for a useful analysis and are not to be considered as all that is desirable for this work. Individual plants can add to these minimum data such additional information as they desire.

MEDICAL RECORDS

(1)	Personal Items (employment data)	Name and address Shop number Age Sex Nationality Marital condition
(2)	Plant Items (occupation data)	Department Occupation Previous occupations
(3)	Scientific Items	Physical examination classification Diagnosis
(4)	Economic Items	Amount of production time lost Amount of wages lost Cost of doctor, drugs and hospital expense Final result

The items included under groups (1) and (2) of the Medical Records chart are already available in the employment records of most industries. Group 3 items are necessary properly to identify the case. These can be expanded as much as required and many include, in addition to diagnosis, methods and details of treatment.

Physical examination classification is important when available. The classification of physical findings adopted by the Conference Board of Physicians in Industry is recommended, as this scheme, or modifications thereof, is already in use in a large number of plants. This classification is as follows: Class I, physically fit for any employment; Class II, physically underdeveloped or with some slight anatomical defect; otherwise fit for any work; Class III, fit only for certain employment when specifically approved and supervised by the medical department; Class IV, unfit for any employment, rejected.

The question of diagnosis is one upon which the Committee hesitates to make recommendations. At the present time there are two sources of information for diagnostic purposes, one, the International List of Causes of Sickness and Death, the other, Standard Nomenclature of Diseases and Pathological Conditions, Injuries and Poisonings, published by the United States Census Bureau. As they stand, both of these classifications are too bulky for industrial work. It may be advisable and necessary to develop diagnosis classifications by industrial groups as well as by disease groups.

Items under group (4), economic items, are necessary to tie the matter into the industry. The Committee feels at this time that the economic approach to this work offers the most favorable chances for its adoption with some degree of uniformity by industry. Industry is not interested in record keeping for purely statistical purposes, neither are the vast majority of physicians statisticians. However, the committee feels that if the value of this work from the economic standpoint can be shown to industrial management, the gradual addition of items of purely statistical interest will be an easy matter.

To determine the amount lost in production, time and wages would require the cooperation of the time-keeping and pay master's departments. To be of the most value the amount of time lost should be tabulated from a definite limit which involves the shortest practicable waiting period. It will doubtless be difficult to obtain an accurate record of illness entailing a time loss of less than the day or shift during which the illness began. The committee recommends that this basis be used for computing the time lost due to both illness and accident. The cost of physician, drug and hospital expense refers to the services of specialists and hospitals outside the industrial organization. The end result of the case, that is whether the employee died, returned to work or resigned, is also of importance.

Information desired in the Accident Records chart under items in group (1) is the same as that for medical records. In group (2) the item mechanical or non-mechanical attempts properly to place the responsibility either upon management or upon the worker. Under mechanical causes would be those due to lack of proper safeguards or other remediable conditions for which management is largely responsible; while under non-mechanical causes would be listed those for which the employee was primarily responsible.

The items in group (3) can be extended to any degree the individual plant may desire. All information called for is pertinent to the consideration of compensation claims and probably is already available in plants situated in states operating under workmen's compensation laws.

The items under group (4) are similar to those for the same group under medical records, although in this case, for compensation purposes, the amount of time lost refers to calender time rather than to production time, as is the case in the medical records. The other items have been explained in the discussion of the medical section.

A practical obstacle in the accumulation of useful morbidity statistics in the past few years has been the high rate of labor turnover, and, more recently, the high rate of transfer from one occupation to another and from one department to another in the process of reducing personnel. In most industrial establishments, this latter process seems to be about complete. One cycle of industrial activity and depression has apparently terminated, but a new one has begun. Now that the number of employees in establishments is less, the work involved in record keeping is lessened and the data are more valuable because the worker stays long enough at one plant to permit observation of what actually happens from a health point of view. The present time is, therefore, opportune for inaugurating the collection of sickness data, even if the present industrial situation necessitates a very modest beginning.

*Report of committee on Standardization of Records for Medical Service in Industry submitted by E. L. Redden to the American Association of Industrial Physicians and Surgeons.

The Committee feels that until some such scheme record keeping as here presented is adopted and carried out by a representative group of industries for a sufficient length of time to enable a fair valuation to be placed upon this work, industrial medical work as a whole will not be able to make a proper showing in comparison with other departments of the industrial organization. If a group of plants representing different types of industry would cooperate in keeping of such records for a definite length of time, say a year, and would then permit these records to be analyzed by some competent central body, information could be obtained which would form a basis for the building up of a definite record keeping program. The Committee recommends that some such coordinated effort be made by a group of interested plants. It is believed that there are already available disinterested organizations capable of making an analysis of such records.

If the science of preventive medicine in the industrial field is to progress, its statistics must develop. No science can be expected to make much headway without a means of measurement. It would seem that there is not merely a field, but an urgent necessity for cooperative effort in the direction that will afford a real basis for the control and prevention of disease among industrial employees.

ACCIDENT RECORDS

(1)	Personal Items (employment data)	Name and address Shop number Age Sex Race Social condition
(2)	Plant Items (occupational data)	Department Foreman's name Occupation How long in employ Physical examination classification Were guards provided and in place Could they be used Cause Mechanical or non-mechanical
(3)	Scientific Items	Part of body injured Nature and extent of injury Treatment
(4)	Economic Items	Amount of time lost Amount of equivalent wages lost Cost of physician, drug and hospital expense Amount of compensation paid End result

Industrial Ophthalmology

SAFETY devices, education, expert ophthalmological attention are necessary adequately to protect the eyes of workers in chipping and grinding trades and in industries where there is possibility of molten metal endangering the eyes. Dr. V. E. Van Kirk of Pittsburgh presents in the *Journal* of the American Medical Association a study of twenty-five thousand cases from a steel mill employing about 8,000 men. The mill consists of furnaces, open hearth and Bessemer, rolling mills, and coordinating departments.

Safety devices result in a great saving of eyesight in industry and a saving as well in compensation to the employer. In one year alone in this mill twenty-five men were saved vision in one or both eyes and the employers saved $50,000 to $60,000 in compensation. Goggles should be worn especially by men engaged in chipping and grinding, by men using the oxyacetylene torch or electric arc in welding, by furnace workers, and by others exposed to intense light. Men pouring babbitt metal should be provided with masks.

By far the greater part of industrial ophthalmology deals with the treatment of minor injuries of which the majority are foreign body cases. The attempt by a nurse or general practitioner to remove a foreign body from the eye is often attended with serious consequences. The procedure followed with success in this particular mill is, when the foreign body cannot be removed with a cotton swab, to instill into the patient's eye phenacain (holocain) or butyn solution, apply mercuric chlorid ointment, and a patch. The man is then allowed to return to some work safe and suitable for one wearing a patch and is seen at the next visit of the ophthalmologist.

The ideal way, of course, is for the foreign body to be removed at once that no bad results have been seen from allowing the foreign body to remain *in situ*, nor do the men complain of pain, Dr. Van Kirk reports.

In such case, the ophthalmologist must remove not only the foreign body but also all stained or devitalized corneal tissue. Unless this is done, the eye remains irritated for some days and is more liable to ulceration. The patch is then worn for twenty-four hours more at the end of which time usually no other treatment is needed. Trachoma must likewise be watched for.

This mask saved both eyes of the workman in an explosion of babbitt metal.

The next step to be taken in industrial ophthalmology, Dr. Van Kirk states, is the refraction under cycloplegia of all employees and furnishing them with the proper correction.

Stimulated by significant findings of the English Departmental Committee Appointed to Enquire into the Ventilation of Factories and Workshops, the writers have carried on an exhaustive study on the relative value of lateral ports and inclined branch ducts, on uniform and tapered main ducts using both plenum and exhaust. They grade the efficiency of various combination, ranked in descending order and judged by evenness of distribution, as (1) plenum untapered with branch ducts, (2) exhaust untapered with branch ducts, (3) plenum tapered with branch ducts, (4) exhaust tapered with branch ducts, (5) plenum untapered with lateral ports, (6) exhaust untapered with lateral ports, (7) plenum tapered with lateral ports, and (8) exhaust tapered with lateral ports.

The Functions of Medicine in Industry*

By JOHN A. LAPP, Director Department of Social Action, National Catholic Welfare Council, Chicago, Ill.

THE natural state of man is in the open. His most natural employment is agriculture, hunting, and fishing. In an outdoor environment his health is promoted and he is protected against many dangers. This most natural condition of man's employment is, however, not the prevailing one in this country. Man has been taken out of his natural environment and has been placed in factories, mills, and mines; he has had placed in his hands strange tools with which to work, and is engaged in the operation oftentimes of complicated machinery. He is subjected not only to the ordinary burdens of work which he would have outdoors, but in addition he works at monotonous employment, often in unnatural positions, surrounded by foul atmosphere, sometimes by dangerous poisons. He is surrounded sometimes by unhealthy dust and by deleterious substances, acids, or poisons; he works in unnatural heat, in insanitary surroundings, under artificial light; he runs the constant risk of serious accident; he is fatigued by his unnatural employment and becomes for that reason a special prey of accident and disease. Clearly, the purpose of those who control industry should be to make the environment as nearly natural as may be possible.

We cannot go back to pastoral employments. Men under modern conditions must under present conditions work in factories, mills, and mines. The only way in which man's estate can be improved is to adjust the working environment to the men and women who work in industry, and to adjust the workers themselves, so far as possible, to the conditions of the new employment.

It should be perfectly clear to every one that industry exists for man, and not man for industry. The first consideration everywhere must be the human factor. Mere industrial success and money making cannot justify the physical destruction or deterioration of a single man. Industrial medicine should concern itself with the place of employment. One of its prime duties is to insure that the workers have a fit place to work, with due reference to the physical weaknesses which are inherent in mankind. Industrial medicine should determine the sanitary conditions under which men work; it should see that all the environment protects the worker against the spread of disease and against conditions which may weaken the morale of the workers. Industrial medicine should look closely to the problem of ventilation, whether in office or shop. It should establish standards of lighting, so that the individual may be protected against the loss of efficiency, and perhaps even the ability to work through the deterioration of eyesight caused by bad lighting conditions. Industrial medicine must solve the problem of injurious dusts, gases, and acids. It is reported by good authority that in ordinary times more than four million men are employed in industries where injurious dust alone damages the health of the workers. Industrial medicine must study the problem of heat particularly in all industries where heat processes are a factor in production. Industrial medicine must consider the whole question of monotonous employment, fatigue, and posture required of workers at work.

Protection of Children

On the other hand, the worker himself comes in for the study of industrial medicine. Some workers should be excluded from attempting to do certain kinds of work which may be dangerous to their physical well being. Children need particularly to have the unaccustomed burdens of industry properly adjusted to their backs. Women in industry present additional problems, requiring more careful adjustment in industrial work than others. Workers must also be protected against contagion, which may be disseminated by their fellow workers. All of this requires, in the first place, physical examinations. Around this subject of physical examination has revolved much controversy, but such controversies are due to lack of understanding of the purpose of physical examinations, on the one hand, and to unfair use of physical examinations on the other.

Physical examinations may be for two main purposes: (1) to exclude workers from an employment; and (2) to adjust workers to the jobs which they can do best, and which will not be injurious to them. It is necessary in some employments to have a physical examination for purpose of exclusion. Tests for color blindness are essential for signal men; candidates must necessarily be excluded if color blindness is found. Restaurant workers should be examined for communicable diseases, and must be rigidly excluded if found to be affected. Elevator operators should be excluded when a bad heart condition is found. These are samples of the proper use of exclusion as the end of physical examination. In many instances, which might be cited, exclusion is essential for the protection of the worker himself, his fellow employees, and the general public. The prime purpose of physical examination is to adjust the worker to positions which it will be safe for him to fill, both for himself and others, and which will enable the worker to develop the greatest amount of efficiency. Scientifically carried out, such examinations would find a proper and safe working place for men with physical or mental handicaps. Physical examination for this purpose is altogether too rare. Perhaps it is rare because of the high qualifications needed in the ones who make physical examination and the occupational adjustments. It requires not only the skill of the doctor and the surgeon, but also the scientific application of the principles of social work. Expert employment service and scientific social work are necessary additions to his skill, and must generally be provided from other sources.

The bulk of industrial medicine and surgery arose out of the requirements placed upon industry by the workmen's compensation acts. When industry became responsible for payment for all accident occurring, it was found advantageous financially to take care of the wounds of industrial workers by employing a physician to come into the factory for surgical or medical work. Some industries found it advisable to employ physicians for several hours per day to attend to minor injuries by immediate treatment, thus preventing worse conditions from developing, and to take care of injuries so as to restore to working capacity sooner than otherwise would be the case. In either instance the dollar was the motive. Industry was concerned with saving the money which they would

*Presented before the Fifteenth Conference of Industrial Physicians and Surgeons, Harrisburg, Pa., May 25, 1922.

otherwise have to pay in compensation, or in increased insurance rates. Many physicians and surgeons summoned into industry began to grasp the full significance of medicine as related to industry and industrial workers, and to enlarge their view to comprehend the whole health of workers in industry. They have been the leaders in attempting to make industry safe for the workers and the workers safe for the industry.

The beginnings thus made are bound to grow. Industrial medicine has a great future. The industrial physician will by no means do the whole job of promoting the physical well being and safety of workers, but he will be an important factor. Linked with him will be the employment department, scientifically engaged, the service department, and the department of social welfare. All of these departments, including the medical, will eventually be organized on a mutual or cooperative basis. The function of industrial medicine will become a cooperative enterprise of employer and employee, with perhaps the public taking an active part for the good that may come to the community. One of the serious weaknesses of industrial medicine today is that it is not cooperative, and does not enlist the financial interest of the employee. It cannot receive the full moral support of labor unless labor has a hand in its management and a burden in its support. Too many industrial physicians take the point of view of the employer. From observation covering some years, I am convinced that industrial physicians and surgeons, with many brilliant exceptions, are unsympathetic with labor and labor unions. There can be no permanent success with such an attitude. It is contrary to the best conception of industrial medical work. Labor unions and cooperative labor groups will fill a more important place in the future than in the past. Industrial medicine must establish itself on the solid ground of industrial peace by taking neither side and by establishing close communication with the human material with which they must deal among the industrial workers and employers. Science takes full account of every factor.

Clean Windows an Economy

THAT cleanliness produced by mere soap and water and a soft rag is economy is the contention the New York State Department of Labor is urging on factories within its boundaries. Clean windows, clean lighting fixtures, white painted ceilings, light tinted walls, and white machinery will increase the illumination thereby reducing eyestrain, fatigue, and accident, and promoting health. In the belief that merely by keeping lighting facilities in a state of cleanliness many workshops can bring their illumination up to the minimum required by the new state lighting code, the department has issued a bulletin setting forth the economic value of maintaining clean windows and lighting fixtures.

The ideal of every workshop should be to secure as much sunlight as possible, and failing in this to resort to artificial light as much resembling the deflected rays of the sun as possible. Dirt on windows, on lamps and fixtures causes a wasteful absorption of light. Indeed, authorities in the past have made allowance for the accumulation of dirt on bulbs by increased lighting intensity.

Inspection has disclosed workshops which, had their windows been cleaned, would have reduced considerably their cost of illumination. Windows blocked with materials, windows with partitions near them, windows covered with signs and letters and painted designs have been found which excluded a great amount of valuable daylight.

Many stores and factories realize the value of clean windows. In fact, window cleaning has come to be a trade, and men equipped with ladders, pails, brushes, squeegee and other material engage in this occupation. In many buildings, however, the work is left to factory hands who with little equipment carelessly clean the windows.

The failure to clean light bulbs, reflectors, globes, and diffusers of an artificial lighting system results in just as serious loss of illumination as neglect in cleaning windows. Soap and water are the materials most generally used for the cleaning of glassware of lighting units. In some industries special cleaning preparations must be used to remove the specific sort of dust raised.

The cost of cleaning windows is balanced by the saving on lighting bills. A New York City department store seven stories in height and with a basement employs a man at $23.00 a week to clean the electric light globes and fixtures of the store. The cleaning is done at night with each unit in place. The average cost of cleaning each light averages about six cents per unit. They are cleaned every eight days. And the firm receives almost the full benefit of the money it expends for illumination.

Walls, ceilings, and columns constitute a secondary source of light, for much depends upon the reflective surfaces in obtaining a uniform distribution of light in the room. Newly painted white walls will reflect from 70 to 80 per cent of the light they receive; yellow walls reflect 55 to 65 per cent; dirty tan walls reflect from 25 to 40 per cent of light. Care should be taken, however, that the plain white should not produce a glare.

Windows of a factory found to be coated thickly with dirt and lint through which daylight was supposed to enter. After cleaning with soap and water, 174 per cent more light was admitted than at the time when the photograph was taken.

Eyestrain in Industrial Occupations*

By NELSON M. BLACK, M.D., Milwaukee, Wisconsin.

EFFICIENCY is one of the side bars of the ladder to success and visual efficiency is of the utmost importance in all industrial occupations. The fact that many totally blind individuals are economically efficient does not tend to mitigate the above statement. The real problem therefore is: What is the effect of eyestrain on efficiency in industrial occupations?

Generally speaking vision may be considered as that process whereby light, color and form are recognized, and is conceded to be the result of the physiological action of light in the composing of a photo-chemical substance contained within the retina or nerve-bearing coat of the eyeball. Hence light or illumination is of prime importance in visual efficiency. The ability of the normal eye to distinguish the form of an object depends upon three factors: (1) the size of the image received upon the background of the eye; (2) the amount of light reflected from the object; (3) the contrast of the object with its background. An object can be recognized by the so-called normal eye if the angle subtended by it upon the retina equals five minutes and its component parts, as for instance a letter, subtend a 1-minute angle. The amount of light reflected from the object must be sufficient to decompose the photo-chemical substance within the eye and cause a stimulation of the optic nerve endings. The coefficient of reflection between the object viewed and its background must differ sufficiently to make a contrast, otherwise the object will be invisible.

All rays of light reflected or emanating from objects twenty feet or farther away are practically parallel. The normal eye when at rest is in focus for a distance of from twenty feet to infinity. When an object is closer to the eye, say at the reading or working distance of fourteen inches, the rays of light emanating from the print or object worked upon are divergent and must be converged or be brought to a focus upon the retina to produce a clear image.

In order to obtain a clear picture with a camera it is necessary to have the plate or film at a focal point of the lens. With the eye it is necessary to have the retina at the focal point of the lens. With the camera, the lens is moved forward or backward from the plate; such a movement is manifestly impossible in the eye. What does take place is called the act of accommodation and is a physiological process of the lens substance. The lens of the eye is enveloped by a capsule; attached to the margin of this capsule is a delicate circular ligament which in turn is attached to a muscle in the anterior segment of the eye. The lens substance within its capsule is an elastic material which constantly tends to take the form of a sphere. When the controlling muscle is at rest the ligament attached to the capsule holds the lens substance in a flattened form and the eye is accommodated for parallel rays. When the rays become divergent the muscle contracts; this relieves the tension on the ligament and capsule and the lens takes on a more spherical form and focusses the divergent rays on the retina.

Causes of Eyestrain

The constant use of the muscle controlling the mechanism of accommodation in normal eyes for any near work is fatiguing and productive of strain which can only be relieved by short intervals of rest. In normal eyes strain is induced by improper illumination and by lack of contrast in the color and background of the materials worked upon.

Under proper illumination eyestrain results from: (1) substandard vision due to congenital deformities of the eyeballs; (2) lack of perfect harmony in the action of the muscles controlling the movements of the eyeballs; (3) some defect in or disease of the eye itself. The subject of illumination as a factor in eyestrain is important. Quoting from the chapter on eye conservation in "Waste in Industry" by Dr. Earle B. Fowler, "the simple requirements on which efficient illumination is based are: (1) light enough to see to do work—too little or too much producing discomfort; (2) diffusion to avoid sharp contrasts and deep shadows; (3) elimination of glare."

There are various factors which exist in the eye itself which reduce the ability to see distinctly and therefore interfere with visual efficiency. These are known as farsightedness, nearsightedness and astigmatism, and are due to deformities of the eyeball, which in most instances are congenital.

Farsightedness is the name applied to a condition of the eyes in which the rays of light entering the pupil are brought to a focus back of the retina because the eyeball is too short. Consequently there is blurred vision. Where the eyeball is not too short the accommodation power may be forced to the point where it will converge the rays and focus them on the retina; this causes, after a short time, headaches, pain in the eyes, red lid margins, and inflamed eyeballs. This defect can readily be overcome by placing the proper strength of convex lens before the eyes to converge the rays of light upon the retina and thus relieve the muscles of accommodation of the work.

Nearsightedness is the condition in which the eyeballs are too long, so that parallel rays of light entering the pupil are brought to a focus in front of the retina. These eyes see clearly when the object is close to them, as the reflected rays of light are then divergent and can be focused on the retina. The complaint made by shortsighted individuals is inability to distinguish objects in the distance, vision being blurred even at the ordinary working distance in nearsight of the higher degrees. The defect is corrected by placing the proper strength of concave lenses before the eyes to bring the rays of light to a focus on the retina.

When the cornea, or clear anterior segment of the eyeball, is not the true segment of a sphere the result is astigmatism; in other words, the curvature is greater in one meridian of the front of the eye than it is in the other, so that rays of light entering the eye in the plane of one meridian will not be brought to a focus at the same point as those entering the plane of the opposite meridian, resulting in an irregularly shaped retinal image. This condition is also found associated with either farsight or nearsight and may be corrected by properly adjusted lenses. At or slightly after the age of 40 the ability to read or distinguish details at or within a distance of 14-16 inches is diminished. This is the result of loss of the power of accommodation due to hardening of the lens substance. Such a loss of vision can be brought to normal with glasses which make up the loss of accommodative power.

*Read before the 11th annual meeting of the National Safety Congress, Detroit, August 28-September 1, 1922.

When an object is regarded (say at 14-16 inches distance, which is the proper reading and working distance), the two eyes must turn toward each other so that both eyes will look at the same point. If the muscles which pull the two eyes together are weak there will be blurred vision after a short period of close work and an eyestrain which will cause a headache, frequently not apparent until the next morning. If the muscles which move the eyes up and down are not perfectly balanced in power one eye will not be brought to the same level as the other, consequently more nervous energy must be sent to the weaker muscle, which results after a short time in pain and discomfort and inability to use the eyes.

Prolonged use of normal eyes under the best hygienic conditions induces fatigue, general and local, with lowered visual efficiency. The rapidity with which the fatigue makes itself manifest is greatly increased under bad hygienic conditions. If, in addition, there is defective vision or imperfect muscle balance further loss in efficiency results from inability to see details and mistakes are made, with consequent reduction in quality and quantity production. The effect upon the eyes of strain due to the above mentioned deformities of the eyeballs, known as "refractive errors," are many and varied, depending upon the degree of error and amount the eyes are used in close work. Congestion or redness of the eyeballs with itching and burning of the lids, the formation of a sticky secretion that dries and forms scale at the roots of the lashes, which tend to fall out, and the formation of abscesses in the lid margins, or sties, are common symptoms.

Use of eyes having defective vision from uncorrected refractive errors for any close work produces blurred vision and usually results in headaches, which may appear in the forehead, back of the eyes, the temples or top of the head; all of which tend to interfere with the general efficiency of the individual. Pain in the back of the head, with occasional dizziness and nausea, the result of using the eyes in the near, is usually due to some lack of power or insufficiency of the muscles which control the motion of the eyeballs and is frequently found in conjunction with refractive errors.

The study made by the Federated American Engineering Societies of industrial operations shows that more than 25,000,000 men and women are employed in the United States with substandard vision requiring correction. This is an astonishing statement but corresponds with the result of the visual tests made in public schools throughout the United States. These examinations show 20 to 25 per cent of school children have substandard vision. Newton Fuesle of the *Outlook* attributes this large percentage of defective vision to the fact that evolution has been unable to keep pace with the change in environment and use of the eyes.

Substandard Vision Correction

Manifest errors of refraction, in many instances, are not as productive of eyestrain as those in which the error is latent, i. e. masked by the well-developed power of accommodation, for the reason that the visual defects are so great that the muscles of accommodation cannot and do not attempt to overcome them. In the latter cases the lack of efficiency lies in the inability to see details clearly. In latent errors of refraction the ordinary visual tests will not detect the visual defect, but the symptoms following continued close use of the eyes are unmistakable. For this reason glasses to correct even small visual defects are important and necessary in near work to relieve eyestrain. By the proper selection of glasses the inability of farsighted, nearsighted and astigmatic eyes easily and comfortably to see may be corrected. The insufficiency of the muscles which move the eyes may be overcome in some instances by proper training and exercises, in other cases glasses which correct the refractive errors will bring about the relief; occasionally it is necessary to resort to operative means.

The necessity for the physical examination of individuals, male or female, applying for positions in any manufacturing establishment is a hobby of the writer and will be apparent upon a little thought. For instance, no manufacturer, factory superintendent or foreman would accept or install a machine without inspecting it to see if it were complete in every detail and in good working order. Every employee is a part of the whole working machine of the factory and any defect in any one part affects the whole. For example, a person with one-fourth, one third or even one-half of standard vision cannot be considered as competent a workman as one with standard vision. Again, one may have standard vision according to the test but may have farsighted or astigmatic eyes. The use of the eyes for detail work for long periods under such conditions causes eyestrain which results in pain and discomfort in the eyes, and in headaches, and thus interferes with the efficiency of the individual.

In a very large proportion of the cases of poor sight, properly fitted glasses will correct the vision and if a rule existed requiring physical examination, as suggested above, men with poor vision would find out their difficulty when applying for a position and would, if possible, have their sight improved by glasses. This would prevent many accidents, as well as relieve the individual from eyestrain and headaches, and also enable him to do work much better and more easily. In many cases the glasses would be a protection against eye injuries. Another factor which should be kept in mind, while speaking of eye examinations for applicants for a position, is the payment of indemnity for loss of vision in case of accident to the eye. If there were a record of the man's vision made at the time he was employed and through an accident he lost one-half or all of the vision of an eye the basis of settlement would at once be determined without the man's having to pay a lawyer to fight his employers and try to prove he had perfect vision before the accident.

Further, poor vision or inability to see well may be a factor in causing general accidents, because a man with poor vision cannot see the details of his work or the parts of the machine with which he is working sufficiently well to protect himself against injury. Again, his vision may be so poor that he cannot see to get about the shop without running into objects or machinery in motion, which might cause an injury, especially if the general lighting is poor. It may be said, of course, that such a man should not be employed in such a place. That is true enough and such would not be the case if every man who applies for a job had to submit to a physical and visual examination as one must before enlisting in the army or navy or when applying for a position in railroad or street car service. With a knowledge of the visual ability of an applicant he can be placed in a position where visual defects will be less of a handicap to himself and less of a menace to fellow employees on the one hand, and be informed of his visual shortcomings and directed as to means of obtaining relief on the other.

A letter of inquiry to Dr. Harry E. Mock of Chicago, Ill., relative to physical examinations in industrial corporations elicited the following illuminating reply:

Figures are not available as to the number of industrial corporations hav-

ing physical examinations. Many corporations have reported that they have, but on investigation one finds their physical examination is a mere inspection by a doctor and ofttimes by a nurse. From my studies of the various systems in vogue in other plants and from the reports of Dr. Clarence Selby of Toledo, Ohio, who investigated industrial hygiene for the U. S. P. H., we have estimated that approximately 150 representative industrial corporations in this country really have an adequate system of physical examination of employees. Approximately an equal number of industries require determination of visual acuity.

Unions object to the physical examination of applicants for work, on the ground that employers often use this as a subterfuge for rejecting labor leaders or so-called undesirables in the labor ranks for employment. They object to the examination of employees on the ground that many industries discharge employees who are found to have physical defects and that these men are unable to secure employment elsewhere because of these discharges. Also they claim that the doctor will sometimes find some alleged physical defect and recommend the work as being too hard for that individual when no defect is present and the only desire of the management is to find some exuse to discharge a union man. These are not specific charges but are conditions insinuated by the unions.

The real facts of the case are that some large industries have rejected as high as 15 or 20 per cent of the applicants examined for work. This means that these industries are picking only the physically fit and are not taking their share of the burden by selecting suitable occupations for the slightly handicapped worker—occupations in which the handicapped man can be 100 per cent efficient if proper selection of the job is made. In these industries, where the best form of industrial medicine and surgery is practiced, the percentage of applicants rejected for work ranges between 1 and 3 per cent. These medical departments reject an applicant *only* when he has some condition which makes his presence in the plant dangerous for himself, his fellow workers or for property. All other applicants who have defects are considered and placed according to this formula—physical qualifications plus occupational qualifications equals the job.

Fortunately a great many industries are yearly obtaining this broader vision and are utilizing physical examinations, including examination of vision, for the purpose of scientific placement of men on jobs. They realize that it is an efficiency measure par excellence. Naturally, labor unions are gaining a better viewpoint regarding physical examinations and the objections formerly heard are gradually being wiped out. Mr. Gompers has assured me that if industries would adopt physical examinations from the broad humanitarian standpoint above outlined labor unions would be absolutely in favor of this procedure.

The following is quoted from "Waste in Energy": "As in the correcting of other factors of occupational hygiene, standards have been set, so, after further study, visual acuity standards will have to be determined for each grade of workers and readjustments made, with alterations in our methods of testing acuity to suit conditions, until these standards give us the necessary minimum for each kind of work. As examinations are made at present any set level would exclude workers shown by practical test to be very efficient producers.

"Many subnormal eyes will work well even for fairly trying work if conditions are good. Therefore it is first of all urgent to bring the working conditions up to the best, on the basis now understood."

State and Federal Labor Reports Simplified

Duplication of work by the state and Federal Department of Labor in the collection of employment statistics has been eliminated through a plan that has been adopted by the respective departments which became effective in July. As a result of the new arrangement the work of the United States Employment Service in the collection of employment reports has been discontinued, while the work of the United States Bureau of Labor Statistics has been expanded and the New York State Department of Labor is furnishing from its regular monthly reports that have been collected since 1914 all New York State's reports that are required by the Federal Bureau.

Manufacturing concerns throughout the State which have been reporting to both the State and the United States government have received the news of the new plan with much satisfaction, as it eliminates unnecessary work. Heretofore the firms reporting to the State Department of Labor have also been asked to make similar reports to the United States Employment Service, but the new plans eliminate this duplication of reports. Now the reporting firms will send in but one report, the one to the State Department of Labor, which will furnish a transcript of the report to the Federal Bureau of Labor Statistics.

The cooperation between the State and Federal Bureau of Labor Statistics was begun several years ago and now is being considerably extended in connection with the new plan for the collection of employment data for the country as a whole, which resulted from the recommendations of the Committee on Employment Statistics of the President's Unemployment Conference.

Engineering Occupational Index Compiled

An engineering occupational index is being compiled by the Committee of Classification of Engineering Positions recently appointed by the American Association of Engineers. The committee consists of A. B. McDaniel, educational specialist, War Department, chairman; C. B. Mann, Civilian Advisory Board, General Staff, War Department; Prof. C. J. Tilden, Yale University; J. R. Randall, president, Rochester Mechanics Institute, and W. C. Bolin, pilot engineer, B. & O. R. R., Baltimore, Md. E. O. Griffenhagen, J. L. Jacobs of Chicago, and Prof. H. T. Stock of the University of Illinois are advisory members of the committee.

The index will be of value to employment organizations in the selection and allocation of engineers, to licensing boards, civil service commissions, and similar organizations and to individual engineers.

Canaries in Mine Rescue

International News Reel.

A special cage for the carrying of birds and mice by rescue parties in mines has just been completed by English mining engineers. The cage is air tight, and made of aluminum, with mica windows at the ends and sides. When rescue parties, at work in the mines, wish to test the air, the door of the cage is opened to admit the surrounding atmosphere. The slightest trace of carbon monoxid makes the bird or mouse insensible. Oxygen is stored in a small cylinder on the outside of the cage, and the release of a small valve sends a sufficient supply inside the cage and the inmate is thus revived. Numerous experiments have been made to prove the worthiness of this plan, and in all instances have proved successful so that the British Bureau of Mines has passed on the device. In all cases, the birds, usually canaries, have done their heroic work and have not died. They are being specially bred so as to secure the best species.

The Basis of Efficiency

THE efficiency of the human organism and the factors which influence this efficiency, as one of the most important problems of the present day, were discussed by Dr. E. P. Cathcart before the Section of Physiology of the British Medical Association recently. Physiological laws are the basis of any accurate gauge of efficiency and must be reckoned with as a factor in industrialism. The large proportion of substandard lads recorded in the National Service Report he calls an aftermath of the rampant industrialism of the past century when children of both sexes at the early age of seven were subjected to twelve or even fifteen hours of labor under conditions that are no longer tolerated. That England is still paying the penalty of the older order of industrialism is proved by the higher percentage of rejections among town and factory workers. The physiologic inefficiency of the English people is best attested by the report on preventive medicine by Sir George Newman which shows the minimum average annual loss of time through sickness amounts to 14,295,724 weeks, or a period of upwards of 270,000 years, and this figure did not include absence from work due to maternity benefit, sanatorium treatment, or absences for less than four days per patient.

Much importance must be attached to wide individual differences not only in the capacity to perform work, but in "will to work." As it is impossible to make quantitative determination of the degree of fatigue in a given subject, fatigue studies are usually carried on by measuring the capacity of the organism to carry on under varying conditions of speed, load, rhythm, rest, and work habits. It is significant that the study of metabolism has so far given no clue to the onset of incapacitating fatigue. Benedict and Cathcart found in their experimental work that subjects on the verge of absolute collapse from fatigue evinced, so far as metabolism goes, no marked evidence of diminished efficiency. It may be definitely stated, however, that an insufficient intake of food, or the consumption of poor or inadequate food is one of the chief sources of general inefficiency. The body is able to withstand even complete deprivation of food for comparatively long periods, but this carries with it a corresponding depression of capacity to perform external work.

This phase of the subject has not received the attention it deserves, according to Dr. Cathcart. Two sets of observers have worked on it. Benedict and his co-workers reduced the food intake of an experimental group over a period of four months, so that there was a loss of 12 per cent of the body weight, but so far as laboratory tests were concerned no marked diminution in muscular power took place. The subjects complained of feeling weaker and less capable.

Food Quality Important

The other recorded experiment is that of the condition in Germany during the war years where the far-reaching effects of chronic underfeeding resulted in increased death rate, increased liability to disease, slow recovery from attacks of disease. Professor E. H. Starling's report on these conditions adds that "everywhere the people have lost their vigor and capacity for work," and "all spirit of enterprise is gone." Evidence would indicate, says Cathcart, "that it is not only the quantity but the quality of the food consumed that plays a part in the fitness of the individual to perform hard muscular work. All modern work would seem to point to the conclusion that if the caloric value of the food supplied is adequate, the actual demand for protein is very small. It is very difficult, however, to believe that the far-reaching common belief in the efficacy of a high meat intake, despite scientific evidence to the contrary, is without some foundation. It is possible that the value of meat (flesh) depends not merely on the high biological value of its protein, but also on its stimulation of cellular activity."

Dr. Cathcart places great weight upon the psychic imponderabilia which compose a large part of the average environment. Monotony of tasks is an important factor, and individual temperament important in forming an estimate of monotony. The influence of the cooling power of the air is important, as are factors of lighting, design of machines, etc. The real industrial efficiency of the worker cannot be related to any single factor. The quest of efficiency involves the whole welfare of the race and nation, and for the utmost of cooperative study by the scientific investigator, the employer, and the employee.

Occupation Hazards and Diagnostic Signs

Realizing that physicians would be greatly aided in diagnosis of symptoms by a knowledge of occupations which cause them, Louis I. Dublin, statistician Metropolitan Life Insurance Co., and Philip Leiboff have compiled a pamphlet on occupational hazards and diagnostic signs which is a guide to impairments to be looked for in hazardous occupations. The pamphlet is published as Bulletin No. 306 by the Bureau of Labor Statistics of the U. S. Department of Labor.

The bulletin is of special use to the general practitioner, the industrial hygienist, and to safety engineers. Nine major hazards are listed: abnormalities of temperature; compressed air; dampness; dust; extreme light; infections; poor illumination; repeated motion, pressure, or shock; and the poisons. Skin irritants are treated in a separate section.

To aid him in detecting the hazards and their effect on the worker, two lists are presented. The first consists of the more common hazardous occupations, arranged alphabetically; the second consists of hazards, together with their effects or symptoms, as well as the occupations affected. After each occupation in the first list is a reference code to the particular hazard in the second list.

The procedure is as follows: After determining the man's occupation the medical examiner should look it up in the first list of hazardous occupations; he can then try to discover if the patient is suffering from any of the symptoms enumerated in the second list under the particular occupation. In this manner, the medical profession will become better acquainted with occupational diseases and will be in position to help discover and eliminate such cases. On the other hand, plant executives and safety engineers must take cognizance of the existence of these occupational diseases and eliminate their causes in their particular establishments. The bulletin will also be of use to factory inspectors, labor officials, and workmen's compensation boards in inspecting and rating industries.

Hot lunches are now served to 187,434 children through the efforts of extension workers of the United States Department of Agriculture and the state agricultural colleges working in cooperation with local organizations and school authorities. More than 10,592 children are buying milk for lunch.

The Physician and Compensation

By DOROTHY KETCHAM, Director, Social Service, University Hospital, Ann Arbor, Mich.

THE part that the physician plays in the allotment of compensation may or may not be such as to warrant commendation, but the medical attention given to employees not only at the time of injury but before, as well as following the injury, influences many decisions. The question of negligent care on the part of an attendant physician was passed upon in the case of Brown v. Sinclair Refining Co., 206 Pac. 1042, when the Supreme Court of Oklahoma held that the employer is liable for all legitimate consequences following an accident, including unskillfulness or error in judgment of the attendant physician. The Industrial Commission, it was further determined, has exclusive jurisdiction in such event. But suppose, as occurs frequently, a disease is pre-existent, antedating the injury. In the Schrieber case, 240 S.W., 963, the employee had cerebrospinal syphilis which, according to the testimony of the physicians, was the cause of death, and not the injury. . . . But the jury and the Texas Court of Civil Appeals held that the accident was compensable.

That disability from disease either caused or accelerated by an occurrence in the course of employment which is an accident is compensable, was decided in a similar situation which came before the Supreme Court of Utah (206 Pac. 278) in which a tuberculous condition was aggravated and accelerated by the inhalation of poisonous gases. The Supreme Court of Pennsylvania (116 A. 891) refused compensation in a case where a man was thrown from his wagon over the edge of a bridge into some water. He worked until late that night, developed a cold the next day, and remained at home. He returned to work for twenty-two days when bronchitis and pleurisy developed and he finally died from broncho-pneumonia. The court said that the pneumonia was not traceable to the accident as a natural result therefrom and the statement that injuries were "indirectly responsible" for the pneumonia amounts to no more than "it might have resulted" which is not sufficient. There must be a probable, direct relation shown between the injury, the disease, and the death; otherwise the liability would be fixed by surmise. The same court, however, when the relationship is evident, has awarded compensation as in 116 A. 889, where an employee sprained his ankle and later developed osteomyelitis followed by tuberculous peritonitis.

The Maine Supreme Judicial Court (117 Atl. 306) affirmed the findings of the Industrial Accident Commission which awarded compensation for death from tuberculosis accelerated by an injury. Here the employer must have known the man's condition at least two years before, when he left and later returned to work. In the Webster case (116 Atl. 842) the question of an epileptic seizure was raised. The question as to whether the fall causing death was occasioned by vertigo or epileptic fit was waived by the court as not material to the decision of the case. A second question as to whether the injury was received in and grew out of employment was answered in the affirmative. The Court held that the injuries caused by the fall may have arisen out of employment, even though the vertigo or epileptic fit contributed to the fall. The court adds, "We have found no case in which the claimant has been refused compensation when the accident resulting in the injury or death of the employee was not caused solely by the physical disability of the employee or where it contributed only to the accident."

The Supreme Court of Michigan, 188 N.W. 393, in passing on the cause of death says, "The fact that the plaintiff was predisposed, because of disease, to this form of attack, (to partial paralysis from a hemorrhage in his brain) has nothing to do with the question of what befell him. . . ." Here a watchman who rode a bicycle in making his rounds was injured by falling from his bicycle and in attempting to save himself by catching at a pile of lumber suffered an accidental injury.

A recent holding of the Supreme Court of Michigan, 187 N. W. 400, declares that death from shock arising from an accident occurring in the course of employment compensable. "In the instant case Mr. Klein could not anticipate that, when he removed the register, it would slip from his hand, nor could he anticipate it would hit a fellow employee, rendering him unconscious, nor could he anticipate that he himself would receive a shock which would so affect him in his weakened condition that he would as a result thereof, pass away in less than three weeks. This, however, was just what happened in the opinion of the attending physicians and the other doctors. This was also the conclusion of the Industrial Accident Board."

The Industrial Accident Board, acting within its powers, held the facts to be conclusive and the award was affirmed.

This last case is the first of its kind to be decided and the question is raised, is it justifiable and reasonable? The original participants, the employer and employee, were entirely unaware apparently of the possibilities of their relationship, the employer of his employee's physical condition, the employee of his own physical condition and the possibilities of his work. The fundamentals of physical examination, job analysis, and vocational alignment seem scarcely discernible at times. There is really a wanton expenditure to meet end results but it is a fiction that we plan carefully to alleviate the necessity for such expenditure.

THE Supreme Court of Michigan, June 5, 1922, declared that the provisions of the Workmen's Compensation Act are applicable to "all ages."

The amount to be awarded is in no way dependent upon the probability of a more speedy and complete recovery by a person young in years than by one of advanced age. It depends entirely upon the nature and extent of the disability and wages earned. So long as the disability continues, the payments must continue, within the limits fixed by the act. Any attempt to determine that a part of the disability is due to an injury from which there has not been a recovery, and a part of conditions incident to old age, would be entering upon a field of speculation, which we think neither the board nor this court should be at liberty to explore.

It was held that a rehearing could not be had before the Industrial Accident Board, to review facts not establishing the liability as found by the board, but the amount of weekly payment ordered due to the changed physical condition of the party injured, may, however, "be ended, diminished, or increased, subject to the maximum and minimum amounts," if the facts proved warrant such action.

—Lebourneau v. Davidson, 188 N.W. 402

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Federal Health Work Among the Indians*

An Account of the Health Section of the Bureau of Indian Affairs

By JAMES A. TOBEY, National Health Council, Washington, D. C

SINCE the original inhabitants of the United States were the Indians, the Federal Government has been concerned with Indian affairs from its beginning. Laws regulating trade with the Indians were passed in the early days of the Republic and the office of Superintendent of Indian Trade was created in 1806 lasting until 1822. In 1824, a Bureau of Indian Affairs was established in the War Department by the Secretary of War. In 1832, Congress passed a law which created the Office of Commissioner of Indian Affairs and continued it in the War Department. When the Department of the Interior was formed in 1849 the Office of Commissioner of Indian Affairs was transferred to it, where it has been ever since.

The only order on record dealing with health while the Indians were under the jurisdiction of the War Department seems to have been one concerning the moving of Indians from one country to another. In this order, it was stipulated that care should be taken that the best sanitary conditions prevail and that their health be carefully guarded. Physicians were employed during these days, though more for the benefit of the government agents than for the Indians. Army surgeons were generally accessible and were frequently called upon to render medical care.

In 1873, the first organized effort was made to deal with the health of the Indians. In that year, a division of medicine and education was established in the bureau and continued until 1877. There was a great need for such work as disease had been a potent factor in decreasing the American Indian population. As early as 1865, a Senatorial committee had stressed this rapid decrease and had attributed no small part of it to contact with civilization and consequent ravages of disease. In spite of this fact, the division of medicine was discontinued in 1877, not to be revived until 1909, although there was always a certain amount of medical service in the field. A few years ago, the Indian race was believed to be a dying race. Recent statistics show that it is a living race. In the absence of devastating epidemics, the annual birth rate exceeds the annual death rate, and individuals live out the normal expectancy of life.

The first hospital for Indians was established in 1882. The number of hospitals has grown from 4 in 1888 to 73 in 1922.

From 1875 to 1922 the number of positions authorized for physicians has grown from 74 to 200, for nurses, 8 to 100; for hospital employees, 7 to 100; and for field matrons from 3 to 75. During the war, and since, the Bureau has not been able to keep all the Health Section positions filled.

The principal diseases with which the medical service has to cope have been tuberculosis and trachoma. For instance, it is estimated that in 1920,

U. S. Indian Sanatorium at Carson, Nev., illustrating a [illegible] type in use by the Hospital Division of the Indian Bureau.

there were nearly 25,000 cases of tuberculosis and over 30,000 cases of trachoma among some 200,000 Indians [illegible] tribes. In that year [illegible] tuberculosis sanatoria [illegible] with a total of [illegible] persons and a corps of [illegible] is also employed. Pamphlets on tu-

*Approved by the Commissioner of Indian Affairs and by Dr. D. B. Armstrong, Executive Officer, National Health Council.

berculosis and on Indian babies have been prepared. In 1913, the general death rate among the Indians was 32.24 per thousand population. In 1918, it had been reduced to 29.42 per thousand population, while in 1920 it was 22.33. The birth rate in 1918 was 29.42 per thousand population and in 1920 was 31.67. These figures include the entire Indian population, except the five civilized tribes where normal birth and death rates are said to exist.

There are at present 336,337 Indians in the United States including the five civilized tribes. Many of the Indians are citizens and tax payers. While the Indians are scattered throughout the country, the largest number, 119,255, are in Oklahoma. In general, the majority are in the states of the southwest and west, as Arizona, New Mexico and South Dakota.

The present Commissioner of Indian Affairs is Honorable Chas. H. Burke of South Dakota. The Assistant Commissioner is Honorable E. B. Meritt of Arkansas. The Health Section of the Bureau of Indian Affairs has at present, the following personnel: Chief medical supervisor, $3,000* annual salary; medical supervisor, $2,250* annual salary; 6 special physicians at $1,800** each; 6 traveling nurses, $840** each; 6 field dentists, $1,500 each; 100 agency and school nurses; 160 agency and school physicians; 50 contract physicians; 90 field matrons; total of health personnel, 420.

The present chief medical supervisor, Dr. R. E. L. Newberne, was appointed in 1918 after four years' service with the Bureau and thirteen years' service in the Philippine Health Service, then controlled by the United States Public Health Service. The chief medical supervisor directs the employees and facilities of the health service at large, and makes recommendations for the improvement of such service to the Commissioner of Indian Affairs. In addition to his other duties, the chief medical supervisor acts as principal epidemiologist for the Bureau of Indian Affairs. The duties of the medical supervisor are of the same general character as those of the chief medical supervisor, though somewhat more restricted in scope.

The special physicians of the Indian Service are primarily specialists in the diseases of the eye, ear, nose and throat. They also take charge of epidemics, fill special assignments, and make district and local inspection reports to the Commissioner of Indian Affairs. The Service is divided into six special-physician districts. Traveling nurses accompany special physicians, assisting them in the work and taking care of all patients operated on or treated by the special physicians. Field dentists travel from jurisdiction to jurisdiction in the respective districts and perform dental work for the pupils of the schools and for the reservation of Indians. The Indian Service is divided into seven dental districts.

The difference between agency and school nurses is in most instances a difference of funds from which they are paid. An agency nurse is paid from agency funds and a school nurse from school funds. The duties are practically the same when they are employed in an agency hospital or a school hospital.

The improvement of home, educational, moral, sanitary environmental and social conditions is regarded as the primary object of field-matron effort for the advancement of the Indian people. The field matron comes into the closest relationship with the family and has the best opportunity to influence the home circle, especially the mother and the girls; therefore, she is particularly charged with the duty and responsibility of developing the higher standards of living, or inculcating a desire for progress, and of evolving plans to make the home more attractive.

The administrative duties of the Health Section in the Indian Office include the approval of changes in health personnel, construction and repair of hospitals, purchase of medical and hospital supplies, and all other expenditures for health work, together with the allotment of funds for such purposes. Instructions are issued through the superintendents to the field personnel and directly to the traveling physicians and dentists. Forms for reports are prescribed and examinations made and action taken upon such reports of special physicians, field dentists, regular physicians, field matrons, and hospitals.

A typical ward in the Carson Indian Sanatorium.

Appropriations to the Health Section of the Bureau of Indian Affairs for the purpose of relieving distress and the prevention of contagious diseases among Indians have increased from $40,000 in 1911 to $370,000 in 1922.

These appropriations do not include all that is spent for health purposes but simply the specific appropriations made for "relieving distress and preventing disease among Indians."

The health section has always worked in close cooperation with the other Government departments. It has kept in close touch with the U. S. Public Health Service. The pamphlets of the Public Health Service on sanitary engineering and control of various diseases have been widely distributed on Indian reservations. The Public Health Service made a survey in 1913 of health conditions among Indians, for which purpose $10,000 had been appropriated by Congress. The survey revealed the existence of a large number of cases of tuberculosis and trachoma. In 1919, the Committee on Indian Affairs of the House of Representatives held hearings on the conditions of various tribes of Indians and among other things considered

*Allowed transportation expenses and a per diem of $3.50 in lieu of subsistence when in the field in addition to salary.

**Allowed transportation expenses and actual subsistence expenses not to exceed $3.50 a day when on duty, in addition to salary.

the possibility of having the Public Health Service take over the health activities of the Bureau of Indian Affairs. At that time, Surgeon General Rupert Blue of the Public Health Service appeared before the Committee and recommended that the Public Health Service should not take over this work. The Bureau of Indian Affairs was also opposed to such a step. It was said that the medical problems of the Indian Service were closely blended with the educational, social and industrial problems which concern a race in a critical social and economic transition. During the influenza epidemic, the Public Health Service detailed 362 temporary physicians for work among the Indians. The health section of the Bureau also cooperates with other Government Departments and with organizations for social service for bettering the living conditions of the Indian.

Program for the Prevention of Delinquency

Commonwealth Fund Applies New Remedies at Strategic Points

By BARRY C. SMITH, Commonwealth Fund, New York City.

THE Commonwealth Fund stands sponsor for the various activities which have been undertaken under this program, but it is not in any sense an operating agency in carrying them out. It has rather attempted to gather together into a coordinated whole a number of organizations equipped with knowledge, experience, and staff necessary to the conduct of the work. These operating organizations are the New York School of Social Work, the National Committee for Mental Hygiene, the Public Education Association of New York, and a Joint Committee on Methods of Preventing Delinquency, especially organized for the purpose. It should be stated at the outset that the program for the prevention of delinquency, which this article attempts to describe, is not intended to cover the field in any comprehensive way. It rather attempts, with the emphasis on prevention, to assist in the development of certain somewhat new implements and to apply them at certain strategic points where it is believed they will prove most helpful.

Nearly two years ago the Board of Directors of the Commonwealth Fund tentatively adopted the field of child welfare as a major interest. There followed a process of evolution in the program. In January, 1921, Mr. Henry W. Thurston, of the Department of Child Welfare of the New York School for Social Work, was engaged by the Fund to make a thorough-going study of the needs and possibilities in the field of child welfare. In June of that year Mr. Thurston presented a complete report covering a wide range of activities and suggested certain possibilities both in connection with work for dependent, neglected, and delinquent children and for children in general. After careful consideration of this report, the Board of Directors, at the final meeting in the spring of 1921 adopted a resolution which in effect called upon the General Director to prepare a program dealing with the subject of delinquency, and to include such subjects as visiting teachers, juvenile courts, and psychiatric clinics, with the possibility of an ultimate annual expenditure not to exceed three hundred thousand dollars.

With this guiding resolution and the large amount of available material gathered by Mr. Thurston, the task of shaping a program proved to be a comparatively simple one. In the discussion of the subject at the meeting above referred to, two cardinal principles were emphasized. In the first place, it was felt that, in accord with the more advanced opinions held by social workers of real vision, emphasis should so far as possible be laid upon preventive work. While it was admitted that reformatory and prison conditions were far from good, and that there was great need of reform in this connection, it was nevertheless believed that far greater opportunities were presented in an attempt to deal primarily with prevention. The program, therefore, has not attempted to deal with delinquency beyond the stage of the juvenile court and probation system. Work with children in the earlier stages is, in the opinion of the Commonwealth Fund, far more hopeful, both as to the children served and as to general beneficial results to the country at large, than an effort to salvage the human wrecks who so largely make up the population of our penal institutions and who are, comparatively speaking, little amenable to treatment.

Secondly, it was felt that in the field of prevention of delinquency, there were available effective implements which could be developed so as to achieve greater and more far reaching results. It is the purpose of the program to assist in development along these lines. In this connection there appeared to be at least three considerations of fundamental importance:

(1) It seemed fairly obvious that among the prime essentials, in any attempt to prevent juvenile delinquency, was the necessity for a thorough understanding of the complete make-up, mental and physical, of the child tending toward delinquency; and in this fact lay one great value of psychiatry. Again, (2) it appeared of the very greatest importance to utilize to the fullest possible degree the school contact with the child, and it was believed that great possibilities lay in the development of the visiting teacher movement in this connection. (3) It was clear that any adequate plan for the prevention of delinquency must necessarily require a great increase in the number of social workers specifically trained for particular work of this type. With these matters in mind, the program was prepared under four sections, which I will attempt to describe very briefly.

Section I.—The work of Section I was entirely entrusted to the New York School of Social Work under the administrative direction of Mr. Porter R. Lee, the director, and Dr. Bernard Glueck, of the mental hygiene department. Under the program there has been established the so-called Bureau of Children's Guidance, a psychiatric clinic, primarily organized for training purposes. This clinic has established, among its other contacts, a relationship with five public schools in the city of New York, from which difficult children are referred to the clinic. In each

*Read before the Forty-ninth Annual Meeting of the National Conference of Social Work, Providence, R. I., June 22-29, 1922.

of these five schools there has been placed a visiting teacher operating under Section III of the program as described below. These teachers, in the course of their daily work, find many opportunities to bring to the clinic those children who are in special need of careful psychiatric diagnosis and special treatment based upon it. Children from these schools as well as from other sources with which contact has been established, not only receive careful treatment, but the clinic also serves as a training center for students from the New York School of Social Work and elsewhere. It is giving special attention to the training of psychiatric social workers, of visiting teachers, and of probation officers for service in connection with juvenile courts.

There have also been established at the New York School of Social Work fifteen annual scholarships of $1,200 each for students preparing for either of the above three named lines of work. In addition, the school is offering small scholarships for summer courses to students of experience and promise in the same fields. Very careful courses have been worked out by the school faculty in all three subjects.

This section of the program, therefore, may be said to have two definite purposes. In the first place, through the actual service of the clinic to the school children of delinquent tendencies, it aims to be of real service to the children themselves, and to point the way in determining methods for the prevention of delinquency among school children. At the same time, it provides a training center in connection with the school and the scholarships referred to and will result in an increase in the number of really well trained persons for work in this field.

Section II.—Mr. Thurston's report above referred to calls particular attention to the haphazard way in which delinquent children are handled by the many juvenile courts throughout the country. It would seem to be a *sine qua non* that in the juvenile court, the Judge who is to make anything like an intelligent disposition of the young offender who comes to his attention, must know accurately and in full detail the make-up of that particular child. Probation officers should be in a position to give the Judge something upon which to base the decision. Unfortunately a very large percentage of probation officers are not especially well-trained for their work, and, even where there is a well trained officer, it is impossible for him to present to the court any thorough-going analysis of the particular child involved unless he has at his disposal a means of making a thorough, scientific diagnosis. At the time Mr. Thurston wrote his report, only 17 per cent of the 2,391 courts having jurisdiction over children's cases had facilities for any kind of a mental examination, and in fourteen states no psychiatric or psychological examination of children coming before the juvenile court was given.

Psychiatric Field Service

In the light of these circumstances, the Commonwealth Fund decided to establish under its program a traveling psychiatric field service which would serve juvenile courts and also cooperate with public school systems and social agencies in different communities. This work was entrusted to the National Committee for Mental Hygiene. That organization, which has accomplished much in this field under the direction of Dr. Thomas W. Salmon, at once established a Division of Delinquency under the direction of Dr. V. V. Anderson. The first clinic began its work in February. This clinic, which has had the benefit of the personal direction of Dr. Anderson, is ably staffed. Dr. Thomas Heldt is the psychiatrist in charge, assisted by Dr. E. K. Wickman, psychologist; Miss Mildred Scoville, psychiatric social worker; and Miss Margaret Cavender, secretary. Announcements were sent out offering the services of the clinic to cities which have juvenile courts. A large number of pressing requests, for the service were received almost immediately and the clinic, when established, made its first stand in the city of St. Louis. In the latter part of April, Dr. Anderson reported that the clinic was making very real progress; that he had received an unexpected degree of cooperation from St. Louis people; that the Board of Health and other public departments had placed the services of their staffs at the disposal of the clinic and a number of trained workers had offered their services on a volunteer basis. By the first of the present month (June, 1922) the work had progressed to a point where the National Committee for Mental Hygiene felt warranted in establishing a second clinic, and, at the June meeting of the Commonwealth Fund, an additional appropriation was voted for the establishment of this clinic. It is expected that the first clinic will remain in St. Louis until fall and that the staff of the second will spend two or three months in St. Louis while the technic and method of procedure are being finally worked out. Beginning with the fall there will therefore be available to communities requiring these services two such clinics.

This feature of the work has aroused unexpected interest. A special consulting committee has been organized by the Committee for Mental Hygiene consisting of the following persons: Dr. Thomas W. Salmon, medical adviser of the National Committee for Mental Hygiene, chairman; Dr. Lewellyn F. Barker, of Baltimore, specialist in internal medicine; Dr. Walter E. Fernald, superintendent of the Massachusetts School for the Feeble-minded, Waverly; Professor Arnold Gesell, professor of child hygiene and director of the Psycho-Clinic of Yale University; Hon. Charles W. Hoffman, Judge of the Division of Domestic Relations of Hamilton County Court of Common Pleas, Cincinnati; Dr. Charles H. Judd, professor of education of the University of Chicago; Miss Emma O. Lundberg, director of the Social Service Division of the Children's Bureau, Washington; Mr. J. Prentice Murphy, secretary to the Children's Bureau, Philadelphia; Mr. Herbert C. Parsons, deputy commissioner of the Commission on Probation, Boston.

In general, as indicated above, it is the purpose of this service to demonstrate to those communities which desire it, the value, in handling delinquent and pre-delinquent children, of a thorough-going psychiatric examination and, so far as possible, to assist in establishing work of this character on a permanent basis in the community served. It is expected that the clinic will remain from three to six months in any given community, and it is hoped that during the five years for which this program runs there will result a great development of well organized psychiatric work in connection with juvenile courts.

In addition to this psychiatric field service, the National Committee for Mental Hygiene has established a special psychiatric clinic in Monmouth County, New Jersey, already at work in connection with the general child welfare experiment and demonstration being conducted in cooperation with public authorities and social agencies in that county. This clinic, under the direction of Dr. Christine Leonard, psychiatrist, is making an examination of all school

children and is working in direct cooperation with a visiting teacher supplied under Section III of the program.

Section III.—Under this Section an attempt is being made to develop the technic of visiting teacher work and to extend the visiting teacher movement. In view of the very obvious value of the visiting teacher in the school system, it is astonishing that the movement has gained so slowly. A report, issued by the National Committee on Visiting Teachers in June, 1921, indicates that only twenty-one cities in the United States employ visiting teachers.

The underlying factors and conditions which bring about delinquency may be said to date back on the environmental side almost, if not, quite, to babyhood days; on the physical and mental side frequently to prenatal and hereditary influences. Children of defective mentality make up, after all, but a very small portion of delinquents; a large majority of mentally sound delinquents receive their first impetus toward wrong doing from the conditions under which they live. A drinking or brutal father, a negligent or immoral mother, lack of proper parental discipline or too rigorous discipline, home conditions due to poverty, failure of foreign born parents to understand American ways and hence their American children, lack of sympathy and understanding, easily remedied, but neglected, physical defects, etc., are among the many conditions which influence a child toward delinquent acts. Inability, or unwillingness, of a parent to provide spending money often leads to juvenile stealing; a child who has overmuch work to be done at home neglects his school work, and this may speedily affect his conduct.

Miss Edith Abbott, of the University of Chicago, has called attention to the great influence possessed, potentially at least, for the prevention of delinquency by the school teachers of the country. She says: "The school teachers of the United States, if they can be socialized, can accomplish more to prevent delinquency than all the social workers together." This statement is based on the recognized fact that the greater part of delinquency is caused by family and neighborhood conditions, and by the further fact that the school teacher, provided she is alive to it, has unequalled opportunities to observe the first signs of undesirable tendencies on the part of the child; for any child, who is tending in any way toward delinquency, invariably indicates that something is amiss by his school conduct, work, or attitude. In the school, therefore, where a child spends a large part of his day, lies the best chance for observation and for taking the measures to prevent the development of such tendencies. To the teacher lies open the way to establish a sympathetic understanding with the home, to confer with the parents through their natural interest in the child's school life, and to study the child and his difficulties in the atmosphere of his daily life at home, at school, and in the neighborhood.

The most successful effort, therefore, to catch the earliest incipient tendencies toward delinquency is likely to be directed through the school. It is from this fact and similar considerations regarding other difficulties of the child that the visiting teacher movement has largely taken its beginnings. It is obviously of great importance that every effort should be made to train the ordinary class teacher along these lines, to see to it that she does not judge her pupils solely in terms of reading, writing, and arithmetic, and to help her to become alive to the fact that the child's home influences, or the playmates he may have, affect his conduct; that this little girl has to help her mother too much; that this small boy's apparent laziness may be due to his eyes. But in the school systems of our cities, the ever increasing professional duties of the teachers, the large classes, the many meetings, the quantity of outside work to be done, preclude any possibility of her establishing the close individual contacts with the child and his home which are necessary for good results. Educational authorities who have studied the subject agree in the opinion that this should be the work, at least in the large cities, of the visiting teacher. That she can accomplish valuable results has been definitely proved. Moreover, wherever she has been tried she has proved her value in educating the grade teachers to the importance of the point of view above outlined, and in many cases has changed the entire attitude of a teaching force.

With these considerations in mind, the Commonwealth Fund cast about for the best available agency to assist in developing visiting teacher work throughout the United States. Provision was made in the program for the placing of ten visiting teachers in as many different communities each year. The cost of these teachers is to be met over a three year period, two-thirds of the Commonwealth Fund and one-third by the local community. The Public Education Association of New York accepted this responsibility and sent out announcements of the opportunity offered, to a large number of communities located in the first instance east of the Mississippi River. An astonishing number of applications was received. Nearly two hundred communities desired this service, and it is a somewhat surprising fact that the replies in most instances came directly from the public school systems and not from some civic or welfare agency.

The work under this section of the program has involved many difficulties and has therefore been somewhat slower of development than any other section. It has been necessary to select the communities with great care in order to be sure that the authorities were really in earnest and understood exactly what it was they were asking for. It has also been a difficult proposition to secure visiting teachers who are well trained and who will be satisfactorily adapted to the particular community to which they are to be sent. This difficulty has also been increased through the fact that the supply of visiting teachers is extremely limited. At the time that this is written definite arrangements have been made for placement in the following places: Monmouth County, New Jersey; Bluefield, W. Va.; Kalamazoo, Mich.; Durham, N. C.; Richmond, Va.; Burlington, Vt.; and Warren, O. It is expected that the full complement for the first year, and the ten additional for the second year, will be placed, however in the fall.

In addition, the Public Education Association has also the responsibility of placing and directing visiting teachers in each of the five public schools in New York City with which the Bureau of Children's Guidance, under Section I, is cooperating. Also, the teacher in Monmouth County, as indicated above, is cooperating with the clinic established by the Committee for Mental Hygiene.

Under this section of the program, also, a special piece of work is being financed in Public School 64 in New York City along the same lines employed for several years by the Public Education Association. This is really a grading experiment based on careful psychological tests of the children, and represents fundamentally an attempt to adapt school in-

struction to the needs of the individual pupil. The work has been described at length in various publications issued by the Public Education Association and needs no specific description here. The value of careful consideration and care of the individual in developing the child to the fullest along various lines, and in preventing delinquency through furnishing a satisfactory and constructive outlet for youthful energies has been astonishingly overlooked by educational authorities until comparatively recently.

Section IV.—To summarize the undertakings which have been described, we have the following:

Under Section I: (1) Provision through scholarships for training psychiatric social workers, probation officers, and visiting teachers at the New York School of Social Work; (2) the Bureau of Children's Guidance, providing training for the types of workers mentioned, together with careful examination and treatment of difficult children from five public schools and other sources.

Under Section II: (1) The services of two traveling psychiatric clinics to communities desiring it in connection with their juvenile courts; (2) a special clinic conducted in connection with the Monmouth County Child Welfare Association.

Under Section III: (1) The maintenance of visiting teachers in five public schools in New York City cooperating with the Bureau of Children's guidance; (2) the placing of ten visiting teachers per year for a three year period in different communities throughout the country; (3) the special grading experiment in Public School 64.

It is obvious that there are here indicated three somewhat separate and distinct operations which nevertheless have contacts at a number of points. There was necessary a definite coordinating force in order to weld the program into a comprehensive whole. The Commonwealth Fund has therefore established a Joint Committee on Methods of Preventing Delinquency. This Committee at the outset was a purely representative body. Section I is represented in its membership by Mr. Porter R. Lee and Dr. Bernard Glueck; Section II by Dr. Thomas W. Salmon and Dr. V. V. Anderson; Section III by Mr. Howard W. Nudd, director of the Public Education Association; while the Commonwealth Fund is represented by its General Director.

This Committee therefore comprised three distinct lines of training and experience, viz.: the social worker, the medically and scientifically trained psychiatrist, and the educator. In this way it was believed that the different points of view and attitudes of approach of these three Sections could be welded into an effective unit. It was intended, however, that the membership of the Committee should be increased to include other persons of experience in the delinquency field. The Committee has proceeded slowly in this regard. It has recently elected to membership Professor Henry L. Morrison, of the University of Chicago, and expects to add several additional members in the fall.

Coordinating Forces

The purpose of this Committee may be considered to be threefold. In the first place it has served as a coordinating influence in securing the joint operation of the three Sections as a comprehensive whole. Secondly, it has been the intention of the Committee to make a thorough-going study of the work done under the program as well as of other activities along the line of prevention of delinquency. Thirdly, it hopes to publish from time to time accounts of the work and of results achieved in such a way as to point out the possibilities of development. It hopes also to serve as a general bureau of information and clearing house regarding the many efforts in the delinquency field being conducted under the direction of American Social workers.

In order to carry out these last two purposes, the Committee engaged as its executive director in March, Mr. Arthur W. Towne, formerly general secretary of the Brooklyn Society for the Prevention of Cruelty to Children. On May 1 the Committee opened offices at 52 Vanderbilt Ave., New York City, and Mr. Towne is actively at work developing the program. The staff at the present time consists of Mr. Towne and Miss Mabel Ellis, formerly of the National Child Labor Committee, as a special investigator. It will be increased from time to time as the necessities of the work demand.

In order to carry out the purposes of the Joint Committee arrangements are being made to have uniform record forms employed by the various psychiatric clinics, and also by all the visiting teachers employed under the program. Careful analysis of the work done will be made and it is intended to publish a brief bulletin at regular intervals regarding the various phases of the work. This bulletin and other publications, magazine articles, etc., will be written so far as possible in a simple and non-technical manner in the hope that they may be read and understood by the interested lay public and not, as is often the case with such documents, be merely scholarly and technical treatises to adorn book shelves without ever being consulted.

The chief activities of the program are as described above. From time to time, however, it is expected that various extensions and additions may be made either directly under the program or indirectly connected with it. During the current year special appropriations have been made to the Judge Baker Foundation in Boston for the support of Dr. Healy's work with delinquents, to the New York Probation and Protective Association for a psychiatric clinic for girls, and also for the establishment of a special training school for high grade moron girls in connection with the Manhattan Trade School of New York. This last work has not yet been begun.

The program proper has been adopted for a period of five years. As to whether or not it will continue, either in the present or in a modified form at the expiration of that period, will depend upon various circumstances, such as the effectiveness of the results secured and the conditions existing in the field at the end of the time.

In conclusion, I should like to emphasize again the fact, that in adopting this plan of work, the Commonwealth Fund is not laboring under the delusion that any such effort will revolutionize the world. No pretense is made that it comprises a complete undertaking for the prevention of delinquency. It is simply one of many efforts organized in the hope that it may, by developing certain relatively neglected lines of work, do something of value toward the solution of a very difficult problem. It would be ungrateful for any representative of the Commonwealth Fund to omit in any description of this work an acknowledgment of the hearty interest and cooperation which has been received at all times from the representatives of the operating agencies which, after all, are responsible for the conduct of the work. The devotion and wholeheartedness with which everyone concerned has thrown himself or herself into the making of this undertaking a success has been a source of great gratification.

Hospital and School for Tuberculous Children

By F. E. HARRINGTON, M.D., LL.D., Commissioner of Public Health and Director of Hygiene, Minneapolis, and WALTER E. LIST, M.D., Superintendent, Minneapolis General Hospital, Minneapolis.

IN 1912 George R. and Frederick W. Lyman deeded to the city of Minneapolis a tract of land containing 78,525 square feet on which stood the Lyman homestead, a spacious, old-fashioned house equipped with all modern improvements. In the rear of this building was another residence, smaller in size but modern in appointments. This donation to the city was made for the operation of a children's hospital and became the pediatric branch of the City Hospital. Some remodeling was done and the much overcrowded children's wards of the City Hospital were transferred to the new institution.

The board of charities and corrections, an executive board of the city of Minneapolis having charge and jurisdiction over hospitals, in 1917 moved the hospital building to the rear of the lot beside the smaller residence and began the building named "Lymanhurst"; which was completed April 1, 1921 at a cost of $265,000; it became the pediatric hospital branch of the general hospital system of the city.

This modern hospital building faces east and stands back seventy feet from the property line, giving large grass plots with numerous trees in the foreground. The building is 205 feet long and is constructed on the central administration plan with north and south wings, the wings being 37 feet from front to rear and the main building 67 feet in depth and 50 feet in width for that portion extending to the front and rear wing lines. On the north entrance a cement drive from the street has been constructed for ambulance service. The boiler room and power house are located some 65 feet in the rear of the building connected therewith by tunnel and accessible for coal deposits and ash removal.

The entire grounds have been landscaped and are naturally beautified by large shade trees; cement walks have been constructed. The building stands two stories above the ground floor. It is built of cement brick with cement cornices and trimmings. Being open on all sides it is about 80 feet from the nearest building, excepting the power house, and adequate ventilation and light are provided.

At the time the building was turned over by the committee in charge of construction to the department of public welfare as completed and ready for occupancy, it was found impossible to man the building properly because of the shortage of nurses and because of the absence of adequate housing facilities for nurses' home. The building was designed as an eighty-six bed children's hospital. It was not possible to obtain sufficient nurses to serve an institution of that size.

In anticipation of the completion of the building and with a realization of conditions existing with relation to the nursing force the commissioner of public health and director of hygiene brought about a joint agreement between the board of public welfare directing the division of public health and the division of hospitals, and the board of education directing the department of hygiene. This agreement was to the effect that Lymanhurst was to be opened as an open air school for the education and care of children of school age with active lesions of tuberculosis.

The problem of childhood tuberculosis had been a subject of study and it developed that something over 120 children were at one time being carried on the records of the communicable disease section of the division of public health as active tuberculous cases. Many of them were too sick to attend school and required hospital or sanatorium care. There was under construction at this time on the grounds of the Hennepin County Tuberculosis Sanatorium at Glen Lake a sixty-bed children's hospital so the application of the idea to Lymanhurst was restricted to children who were able to attend school but who because of their infection were potentially a danger to other children and who under the state law would not be permitted to attend the regular schools of the city. The building is especially adapted to this character of work, is modern in every particular and is arranged as follows:

In the central or administration section on the ground floor are the school

A day school and observation hospital combined in Lymanhurst in Minneapolis

Five of the pupil-patients at Lymanhurst receiving their sun lamp treatment.

All pupils at Lymanhurst retire to their cots after luncheon where they sleep until 2:30 before returning to the classroom.

cloakrooms and a modern, fully equipped x-ray outfit including dark room and technician's office. In this section of the building is located an automatic, electrically controlled elevator. On the main or entrance floor of the central section are the waiting room, director's office, supervisor's office, school principal's office, admitting desk and telephone switchboard with information clerk and a retiring room which has been assigned to the teachers of the school. This room is completely equipped including lavatory, shower and toilet.

On the second floor of the administration section are located the school nurse's hygiene room, the general physician's examining room, the dressing room and alpine lamp treatment room with two large wards facing east and opening on to a large sleeping porch, each room equipped with toilet facilities.

The roof of the administration section is on the same plane with the roof of the wings, is flat, reached by the electric elevator with possibilities of development as a roof sun bath treatment and playground. In the south wing opening on three sides permitting thorough ventilation are sunlight exposure and natural illumination. On the ground floor are located the shower room with dressing rooms capable of accommodating thirteen children at one time, three large dining rooms with serving room and kitchen equipment with all modern hospital dietary apparatus and ventilated by forced electrical ventilators.

On the main or entrance floor of this wing are the classrooms in conjunction with which are a kindergarten room, book and stationery storage and a toilet room each for boys and girls. The main classroom is about 75 by 70 feet, open on the east and west exposures with a smaller room designated as an enclosed porch open on three sides and facing south with two smaller study or recitation rooms on the east and west exposures between the main classroom and the enclosed porch classroom. On the second floor of the same wing with approximately the same arrangement are the cot rooms, (excepting the enclosed porch which is being used as an additional classroom), in which children are given their one-hour rest period. These rooms are also supplied with proper toilet facilities for boys and girls.

The two front rooms of the central section on this floor and the sleeping porch are also used as cot spaces. Classrooms on both floors are equipped with portable desks and blackboards and can accommodate 125 pupils.

All of the equipment for school purposes is furnished by the board of education. The cot rooms are equipped with a portable folding cot with pillow and slip, sheets and two large, double all-wool eight-pound blankets.

On the north wing on the ground floor are the storerooms for provisions and a large cold storage refrigerator, the shipping room with entrance at the rear, the laboratory, locker and toilet room for employees, diet rooms for personnel both staff and employees, and an isolation room with an outside entrance with toilet and diet kitchen connected for the care of suspected communicable diseases until their removal to the isolation hospital.

On the first or main floor of this wing to which leads the ambulance entrance, as previously described, are five wards and three physical examination rooms, the former being used as overflow cot rooms and the latter accommodating the activities of the out-patient dispensary service. All persons use the north or ambulance entrance which brings them directly into the dispensary quarters. On the second floor of this wing are located four lateral wards and one large end ward corresponding to the enclosed porch classrooms at the south end of the building. The two wards facing west with the porch ward accommodate twenty beds, and two wards facing east are used for the nurses' room and the patients' reception room. Adequate toilet facilities are provided in this section as well as diet kitchens and property lockers.

In the basement or cellar of the building is the large autoclave sterilizer, storerooms, elevator, engine and refrigerating plant supplying refrigeration for cold storage and other refrigerators throughout the building, all drinking fountains located in each wing on each floor, and for the manufacture of ice for the hospital consumption. Hot water is supplied from the boiler building and steam heat throughout the entire building. The central section is cut off from either wing by a series of vestibule doors with small stairway leading from the vestibules on either wing between the first and second floors. The main stairway is in the central section of the building, leading from basement floor to the roof beside the elevator shaft.

The entire building is of fireproof construction; all floors are cement block and the walls to a heighth of five feet on the ground floor are plastered with a cement plaster. All partitions are hollow tile plastered and partitions between wards are clear

glass panelled, virtually throwing each wing into a single ward. Lighting facilities are adequate, the lights being controlled from a central switchbox on each floor and wall switches in each ward or room.

The tintings of the walls are of a neutral color, pleasing to the eye, bright enough to be non-light absorbing, easily cleaned, and harmonize with the finish of the woodwork which is mahogany throughout the central section, and mahogany doors with white door and window frames throughout the wings.

All equipment, upkeep and operating expenses other than the furnishing especially designed for the school work are included in the operating and equipment budget of the hospital section of the department of public welfare. The director of hygiene and commissioner of public health jointly with the superintendent of hospitals operate and supervise Lymanhurst with a personnel consisting of a principal, four teachers, a hygiene nurse furnished by the board of education, a supervising nurse who is in immediate charge, three graduate nurses and two undergraduate nurses, a laboratory technician in charge of the laboratory and x-ray departments, a clerk, a telephone operator and information clerk, together with cooks, maids, orderlies, janitors and the proper engineering force. The building, of course, is under active operation twenty-four hours each day.

More immediately associated with the director of hygiene and commissioner of health is a staff of twenty specialists including a ortorhinolaryngologist, cardiologist, orthopedist, ophthalmologist, anatomist, hematologist, neurologist, pediatrist, gastroenterologist, roentgenologist, dermatologist, bacteriologist, and specialists in thyroid disorders and general tuberculosis. This is a volunteer staff and supervises directly all physical examinations and treatments. It is made possible to obtain the services of men of their character and standing because of the unusual offerings for the study of children.

The Lymanhurst School has been established by the board of education as a regular open air opportunity school. The course of study and curriculum embraces all grades exclusive of kindergarten and high school, although high school grades can be taught and will be taught should occasion arise. At the present time all grades from the first to the eighth inclusive are taught at Lymanhurst. Children maintain their standing with the grades of the other schools and can enter or leave Lymanhurst at any period of the school year without detriment to their scholastic standing and this condition of affairs actually does exist. Children are admitted to Lymanhurst and discharged from Lymanhurst at any time during the school year as occasion demands.

Any child who has been definitely diagnosed as actively infected with tuberculosis, even though not definitely an open case, is admitted to Lymanhurst upon the certificate and report of the attending physician or clinic. Children showing signs or symptoms suspicious of tuberculosis infection are examined in the out-patient service which service is restricted to children of school age suspiciously tuberculous. Von Pirquet tests are applied and x-ray plates are made of each child and a confirmatory or definite diagnosis admits the child to Lymanhurst School. Only children who are able to attend the regular school sessions are admitted. Children unable because of their physical condition to travel to and from school at the regular school hours of 8:45 to 3:15 are referred for admission to the County Sanatorium at Glen Lake. No child once diagnosed is permitted to attend the regular schools of the city and if able must under the compulsory education law of Minnesota attend Lymanhurst. The carfare to and from school for all children traveling on the street cars is paid by the board of education. There are no other methods of transportation provided.

Once a child is admitted to Lymanhurst as a student a routine physical examination is made by the staff both as a coordinating diagnosis and as a matter of study. With full consent of the parents each specialist makes a research study of the child and periodically these findings are compiled into a symposium report. The child is under constant supervision and any conditions arising of interest are reported to the chief of staff and further examinations or studies are made; or, when advisable either from the standpoint of the physical condition of the child or for more intensive observation, children are placed in the ward for a limited period. If after careful observation as a ward patient the child becomes a candidate for sanatorium treatment an application is made and the child transferred to the County Sanatorium at Glen Lake. Upon improvement, however, the child is returned to the day school attendance. Under direction of the staff such treatment as may be indicated is instituted for all children requiring treatment.

Sun lamp treatment in a room equipped with two Hanovia quartz lamps, able to treat six children at one time, is given and all children in

A ward at Lymanhurst.

The Lymanhurst kitchen.

the school are given shower baths twice weekly. Diet is carefully supervised and the preparation of food is under the immediate supervision of the supervising nurse.

The daily program at Lymanhurst is as follows:

Children arrive and are admitted and at 8:45 are given a light diet consisting usually of a cereal or gruel with milk, and in cold weather hot milk or cocoa. Classes convene at 9:00 and continue until 11:00. The recess period is between 11:00 and 11:30 and children are again given a light diet during the recess period before returning to the classroom. At 12:30 the children pass through the toilet and wash rooms to the dining rooms where a full meal is served. This meal consists of a soup, a meat, vegetables, a properly selected green salad, bread and butter, milk, (no tea or coffee) and a dessert. From the dining rooms the children proceed immediately to their cots where they sleep until 2.30. From 2.30 until 3.15 class is again held. At 3:15 the children are dismissed, again receiving a light diet.

The school curriculum is so arranged that daily between the hours of 9:00 and 12:30 an entire class is excused from recitation or study and it is during these hours that the children are subjected to examinations, bathing, sun lamp treatment and weighing. Temperatures are taken daily of all children during the last forty-five minute period.

The records of Lymanhurst are voluminous, each member of the staff making a record of the findings of the examination conducted by him, and these records are bound and become material for study and research.

As rapidly as children are found to have approached a reasonable norm their case is studied by the entire staff and, if advisable, the child is returned to the school of the district in which he lives.

All classroom and sleeping room periods are conducted with open windows, the children and teachers being supplied with Eskimo suits comprising heavy felt lumbermen's boots, bloomers and reefer coats with hoods made of heavy, long fiber, all wool material. These the children wear in class as well as on their cots. Although fresh air is desirable, too low a temperature is not advantageous, so with the steam heating plant in operation the windows are opened sufficiently to produce a constant change of air but with the idea of maintaining a temperature as nearly 45 degrees F. as possible.

With the close of the first year of Lymanhurst the records show that there have been admitted to the school 199 children, and discharged therefrom sixty-five children. Since the opening of the out-patient dispensary service on January 24, 1922, 222 children have been examined, and since the opening of the observation wards thirty-one children have been admitted and nineteen children discharged. Out of the nineteen children discharged, five went to the Glen Lake Sanatorium.

Lymanhurst fits into the scheme of tuberculosis prevention as an intermediary between the normal child and the child needing institutional hospitalization.

The temperature in the Lymanhurst school rooms is about forty-five degrees which explains the Eskimo costumes.

The Recreation Congress

THE program of the meeting of the Playground and Recreation Association of America presented at the Recreation Congress in Washington, D. C., October 9 and 10 was extremely varied and of the greatest interest as indicating the coast-to-coast activity of this association and the success of community effort, both urban and rural, in achieving facilities for play for the whole people. Play is a re-creative thing and is indulged in spontaneously by the young of every species.

Financing, planning, administering, and legislating for recreation were handled by such authorities as Harold O. Berg of the Cleveland Recreation Council; Lee Hanmer of the Russell Sage Foundation; J. B. Nash, superintendent of recreation, Oakland, Calif.; and George B. Ford, Newton, Mass. The social side of play, the psychology of recreation, and the recreational use of parks were discussed from the standpoint of the public. Institutional programs were discussed by Charles R. Johnson, secretary of the New York State Board of Charities, and recreation in industry by A. H. Wyman of the Carnegie Steel Company.

The sectional meetings were particularly valuable in the specific problems considered. The figures given out on the year's progress are sufficient indication that the work of the Recreational Association is far-reaching and permanent and of benefit to the nation.

Greater Efficiency in Health Work in Schools*

By WILLIAM A. HOWE, M.D., State Medical Inspector of Schools, Albany, New York.

IN MOST communities there is an appreciable need of greater efficiency in health work in schools. Though substantial progress has been made in many sections, especially in cities and large villages, the work in general is not properly organized, is insufficiently financed, and is far less efficient than it should be considering its admitted importance and its great opportunity for the physical and mental betterment of school children. In an effort to bring out some suggestions for improvement of these conditions, consideration will be given in this article to such school health activities as have resulted from the enforcement of the Medical Inspection Law in New York, which it has been my privilege to administer during the past seven years, under the direction of the State Commissioner of Education.

School authorities should more deeply appreciate the need and value of better health work in schools. One of the most potent factors responsible for the slow growth of health work in schools in many sections, is the failure of school authorities to appreciate its real importance and to give to it proper support. Most school people are more interested in other phases of education than in that of health. They regard health education and health training as a minor and not as a major educational function. There are, of course, many exceptions to this rule but in the main it is far more difficult to sell a program of health to educational administrators than to other people. I regard it, therefore, as primarily essential to accomplish greater efficiency, that school authorities should take a deeper interest in health work in schools and should give to it their enthusiastic support.

Better financial support must be given to the work by trustees, boards of education, and all educational authorities.

With few exceptions the personnel for health work in schools is insufficient and the salaries paid are not commensurate with the services expected or rendered. For instance, in New York State more than seven hundred thousand children, thirty-five thousand teachers and more than ten thousand school districts come under the provisions of the medical inspection law that was passed by the Legislature of 1913. No funds were appropriated for its administration during its first year, while only five thousand was available for its second year of enforcement. During the first three years the State Medical Inspector of Schools had only a stenographer to assist him. Five years after the enactment of the law a state supervising nurse was appointed. We now have after nine years a staff of seven people, including two stenographers. This staff is inadequate to do justice to the work, and nearly all of them are poorly paid.

Better Financial Support

Only four of our cities employ full time school medical inspectors. The largest salary paid to any of these four is $3,400 by the city of Albany, the smallest $2,000 by Lockport. Many of our school medical inspectors are devoting half time to the service, for which they receive from $400 to $1,500 for the school year. The average salary paid to one-half time school medical inspectors in ten of our fifty-six cities is $1,099.50. Some of these cities have nearly one hundred thousand population. In this group are some of the best qualified physicians we have in the state.

If we are to expect efficient services from physicians we must be willing to pay them enough to interest them in the work. Much of the inefficiency of health work in schools has been due to inadequate compensation to examining physicians. In too many instances the cheapest and not the best local physician gets "the job" of school physician. The school medical inspector is chosen, not because of his qualifications or his interest in the work, but to save a few dollars for the district. This is the fault of both the physicians and the trustees or boards of education. Neither should be a party to a plan that is sure to beget inefficiency and justly to invite criticism of the medical profession. It is essential that school people should stand for the best of medical services and for reasonable compensation for the same. Some headway in this matter is being made in New York State.

The efficiency of any system of school medical inspection is largely determined by the efficiency of its administration. There should be no confusion or doubt in the minds of school authorities as to the placement or responsibility of the administration of health activities carried on in the schools. This confusion or doubt unfortunately does exist in many parts of the country, and even among school people. It should not be forgotten that divided responsibility of administration leads to confusion, invites misunderstandings, lessens interest, increases expense, and materially diminishes efficiency. School people should insist that all activities, mental and physical, carried on in the schools should be under the direction of school authorities. It will not be found practical nor conducive to good administration for one department to attempt to administer activities that are carried on in fields under the control of another department. School health service is fundamentally and logically an educational problem of training teachers and pupils in applied hygiene and in practical sanitation. The physical examination of teachers and pupils and the correction of defects found will be but a minor part of the service when the full educational program of school health service becomes operative. Its ultimate success will be measured not so much in terms of corrective work as at present as in the maintenance of mental and physical health of teachers and of pupils. It also involves school policy, school organization, and school administration. It is a program of keeping well and not one of getting well. It deals with mental and physical health or growth rather than with disease. It is but an integral part of any modern educational system in which many activities must of necessity unite in its proper organization and efficient administration. To be most successful every unit of its organization and administration must articulate with every other educational unit in the completed program. It must of necessity be administered as a part of and not as a part from the educational system in which it operates. It must be administered from within and not from without.

No system of school medical inspection can hope to attain a high degree of efficiency without proper internal and external cooperation. All health agencies within the school, instructional, correctional, or otherwise should be so organized and articulated

*Delivered before the New Jersey State Teachers Association, Ocean City, N. J., July 11, 1922.

in a department of health education, under the direction of the school medical inspector, that each may be of assistance to all others in the program. This has been done with much success in several cities in New York. The school, the home, physicians, dentists, hospitals, and all local agencies must be brought into closer and more effective cooperation in health work in schools. Emphasis should be placed on the school as the logical community center for health instruction and health direction. To this health center parents should be encouraged to look for guidance in matters pertaining to the mental and physical development of their children. They must be familiar with and in sympathy with the health educational program of the school. They must feel that they are a part of the system and realize that next to the home the school has the greatest concern for the welfare of their children. When such a cooperative relation can be established and maintained between the home and the school far greater efficiency in health work will speedily follow. The health teachings and influences of the school will then permeate the home and influence the entire community for better health conditions. Public sentiment will then support school authorities in demanding more efficient health supervision of the children of the community and far greater progress will be made. It is also essential that cooperating agencies from without should be careful not to confuse the activities of cooperation with the duties of administration. When this mistake is made, as so often happens, many well intentioned agencies really defeat the purpose for which their activities are intended. To prevent such an occurrence, it should be clearly borne in mind, that while several agencies may and should cooperate to accomplish a definite purpose in a special field, there should be but one administrative head responsible for the efficient correlation of all such cooperating agencies.

It is essential for the success of any system of school health service, that proper medical direction should be provided. There is too much of a tendency in some sections and by some people, to depreciate the value and necessity of medical direction and to eliminate the physician, either in part or in full, from the program of health work in schools. This strikes at the foundation of knowledge on which must of necessity be constructed any practical and lasting system of health service in schools. The physicians must guide this health work in schools, just as they do in matters pertaining to health in our daily lives. Physicians, in general, but school physicians in particular, should take a greater interest in health conditions in schools. They should more fully acquaint themselves with modern methods in the early recognition, prevention, and correction of physical defects among teachers and pupils. They should appreciate that bad school building conditions often impair the mental or physical health of either teacher or pupils and materially lessen their efficiency. The school physician should be as much the logical leader or teacher of health in the schools in his community, as he is among the people of his clientele. He might even be qualified by school authorities as a health teacher and the state pay in part for his services. This would dignify the position of school medical inspector, recognize his services as a state function, make him a member of the teaching staff of the schools he serves, insure to him better compensation, and make his tenure of office far more certain. In such an educational capacity he could do much throughout the year to interest local physicians, dentists, hospitals, teachers, parents, civic and other organizations in practical health work in schools. He would become in fact—that for which his training should qualify him—the school health director of his community.

There is great need for more better educated and better trained nurses who, under the direction of school medical inspectors can do far more than at present to instruct and to train teachers and pupils in the construction and maintenance of health. It is a deplorable fact that comparatively few of our early school nurses had more than two years in high school. Notwithstanding this educational deficiency they have done much to accomplish practical results in school medical inspection, especially in the follow-up work. If the nurse can succeed as she has with such a limited education and training, how much greater would be her success when better prepared to do health work in schools. It is encouraging to note that a higher percentage of the better educated women are entering the nursing profession today and that the educational standards for this work are being gradually increased. In New York state no nurse will be able to qualify as a health teacher after 1924 and receive a state quota unless she is a high school graduate and presents definite evidence of practical training in the work. The Board of Regents has established qualifications by which registered nurses may become health teachers. Districts that employ a nurse thus qualified receive a state quota toward her salary. Nearly all former school nurses in New York have so qualified and are now employed and known as health teachers. It is essential, therefore, that the health nurse should possess higher educational qualifications and be better trained to accomplish in a more satisfactory manner the special or instructional duties to be required of her. It is also essential that we should have enough health teachers to do the work well. Unless conditions are highly favorable no health teacher should be expected to look after more than 1,500 children. In New York there are today but few large villages with one thousand school children in which a full time health teacher is not employed. About forty health teachers are devoting their full time to health work in rural schools. The school nursing force has increased from eighty in 1915 to about 275 in 1922 exclusive of New York, Buffalo, and Rochester. In the rural as well as in the city school the health teacher is a necessity to get practical results in school health service. It should be made mandatory to employ at least one health teacher in every rural supervisory district, or its equivalent, in the state and to require that the state shall pay a liberal subsidy toward her salary. The health teacher should occupy to the school physician the same relation that the nurse does in the sickroom to the attending physician. By this plan more health teachers and fewer physicians would be able to accomplish a far greater amount of work and in a better manner.

The mere physical examination of school children avails but little unless proper attention can be given to the correction of the physical defects found. Far too many school medical inspection systems are deficient in their attention to the follow-up corrective work. This could be remedied in many instances by apportioning to corrective service a definite amount of funds available for health work in schools. It is not advisable to use all of the money available for physical examination purposes and allow the more important part of the service to be neglected as is done in so many instances. Our cities and large villages are far more efficient in corrective work than are the rural districts. For instance, last year 53 per cent of all physical defects found were cor-

rected or treated in cities and large villages, while only 27 per cent received such attention in the rural schools. This difference in corrective work is a fair comparative index of the health work that is being done in cities and large villages and in rural districts. The situation is no doubt much the same elsewhere and the causes are not unlike those in New York. Rural people, as a class are not as yet as interested in health matters as are people in the larger centers. Fewer physicians are available, and school nurses or health teachers are the exception. Hospital and dispensary services are not so accessible and in many instances the expense of hospitalization is prohibitive. Again, the unit of administration is so small in the rural district, that it is far more difficult to reach it, or at least to influence it to do better health work. To remedy this unfortunate condition in the rural school, the larger and better equipped centers must extend their facilities for corrective service to the less favored sections. A closer and more effective system of cooperation must be established between the cities and large villages and rural districts not only in corrective work, but in all health work in schools. Material progress is being made in this direction in New York. Should these several suggestions be put into effect, far greater efficiency in corrective work would soon be accomplished. More attention could then be given to the far more important problem of the prevention of the many physical and mental disabilities that are so needlessly common among our school children.

Insufficient attention is being given in many communities to matters pertaining to lighting, heating, ventilating, seating and cleaning of school buildings and to the sanitary condition of school grounds. Many of us have failed to appreciate the close etiological relation existing between school building conditions and the health and physical fitness of teachers and of pupils. Many of the acquired physical defects of children as well as much of the inefficiency of teachers are due to existing causes within the buildings in which teachers and pupils are housed. More attention should be given to this phase of our health work in schools, especially in old buildings, as we can not expect to accomplish satisfactory results, either mentally or physically, in buildings that are insanitary and unfit for the housing of children. In the construction of new buildings provision should always be made for one or more suitable rooms for a school health center, in which should be assembled and closely articulated the activities of the school medical inspector, the school nurse, the physical director and all others doing health work in the schools.

A model or normal plan of health education and health training should be conducted in every institution in which men and women are trained to become teachers. For seven years this has been recommended in New York state. It took three years to induce one state normal school to give some attention to health education and health training. Today all of the ten normal schools and one state college for teachers in New York are doing something along this line. The work, however, is not standardized and differs in many respects in the various institutions. Eleven different plans are being followed in eleven different institutions. While a decided gain has been made in four years there is an urgent need for standardization and for simplification of the work. Every normal school should establish and maintain an efficient department of health education and health training. Inasmuch as nearly all of the pupil teachers are young women, and as medical guidance is essential for successful health service, a woman physician should direct such a department. To assist her should be a nurse, a physical director, and such other experts as may be required. There is no more practical or effective way in which to teach and train prospective teachers than to give to them a practical personal demonstration of what is really meant by school medical inspection or health service. Physical as well as mental qualifications should be demanded for admission to normal schools. Scholastic credit should be given for health attainments as well as for mental improvement, and physical fitness and a working knowledge of personal health, should be required for graduation. Teachers in the service should be taught and trained much in the same manner by those in charge of the work either locally or through the State Department of Education. Present and prospective teachers must be trained to observe deviations from physical fitness and, when found, they should know how to advise the pupil to receive proper attention.

When a child first enters school his mental and physical training should become a regular part of his education. In other words, mental and physical training should begin together and go together throughout the school life of the child. On his admission to school he should be given a thorough physical and mental examination to detect if possible any defect that might interfere with his mental or physical progress. He should be given a physical and mental rating on the basis of conditions found. His parents should be urged to be present when these examinations are made. These ratings should be reported to his parents, who should be urged to give such attention as is needed or is possible to improve the condition of the child. The school report sent to parents each month should indicate the physical and mental condition of the child, as well as its physical and mental progress. When his physical condition improves he should be credited with the same, and in same manner as with increased efficiency in any other subject. Such a plan would prove a great stimulation to parents to keep their children in a normal physical and mental condition and would exert a tremendous educational influence on the efficiency of school medical inspection. The instruction and training in practical hygiene and sanitation should begin in the kindergarten and continue through the high school. It should be reduced to its simplest terms in subject matter taught and in training given. To be most effective it must be made interesting to children, easily understood by them, and of such a character that they can easily utilize it in the formation and development of good health habits. It is far better to teach less and to have it clearly understood and better applied to health achievements than to teach more that is poorly understood and poorly applied to the formation of health habits. It should apply to every child. It should include daily health inspection of each pupil and should be under the direction of a teacher trained in the purposes of school health service. It should be so interwoven with the daily curriculum that it may be given with no disturbance but as a means of stimulation to the mental training of the pupils. Systematic attention should be given to the correction of defects found, and special emphasis should be placed on keeping well. Its purposes should be to keep *every* child well, physically and mentally, and to insure to every teacher and to every pupil conditions conducive to health. Every community should be expected to do its best to contribute to the success of the program for educational efficiency in school health service.

From the viewpoint of health our curricula are overloaded and the school day is abnormally long. This is particularly true and most harmful in the lower or grammar school grades. Many pupils do not have more than two study periods in school during the week and are obliged to do nearly all of their work at home.

Something is radically wrong with a school system that requires young children to take an armful of books home to study at night. Honor children in the sixth grade are known who have to study three hours or more at home to prepare their recitations for the next day. This is wrong and it is important to see that it is rectified. The school day should be of sufficient length for children to begin at a reasonable hour and to get through when school closes. With such a plan children would not only be in better physical condition but would make equally as rapid mental progress. Also, many children are sent to school too young. In most instances they would be just as far advanced with grade work at twelve or thirteen were they to start school at six rather than at five. In brief, let us have a school day and a course of study for children that will enable them to do a reasonable amount of work and then quit until the next school day.

Value of Nutritional Index

THE use of height and weight data as an index of nutritional condition has in recent years undergone great enlargement but comparatively little development. Some doubt has arisen as to the deviation that should be permitted from the existing norms before pronouncing any child to be undernourished or retarded, and as to reliability of weight and height as primary indices of a child's condition.

Realizing this need the New York Association for Improving the Condition of the Poor has issued a pamphlet on Height and Weight as an Index of Nutrition. The subject matter was prepared by the New York Nutrition Council with two objects in view. First, to provide brief instructions for nutrition workers as to the proper methods of recording and interpreting findings. Second, to summarize the recent research findings regarding the growth of children. Several points brought out in the treatment of the second problem are worthy of brief mention in this place.

For one thing it is illogical to expect children of Italian parents living in a congested city quarter to conform to the Burk-Boas norms which are based largely on children of English, German, and Scandinavian stock or to the Wood norms which are based on the children of well-to-do native stock. The formulation of standards based on a cosmopolitan group will not aid in this difficulty but will serve only to obscure the variations that exist between urban and rural and different racial and social groups. These variations are essential if any refinement is to be attained in the use of height and weight indices. The A. I. C. P. is now tabulating the heights and weights of 3,500 Italian children living in a thickly populated district of New York City. The need for further studies of this nature is great.

Measurements based on different set of children at different ages is fallacious in that the younger age groups contain many physically unfit who die off before the higher age groups are reached. This results in a depression of the norms for the lower ages. The desirable procedure is obviously to take repeated measurements of a group throughout the period of childhood. This method has been used in a few cases but more extensive studies in conjunction with the group method mentioned above are much needed.

The present more or less arbitrary procedure of regarding all children seven per cent or more underweight for height as undernourished is another phase of the problem that needs more study. The most satisfactory measure of the zone of variation is the mean square deviation for each class interval. Previous studies have all indicated that this measure increases with age in respect to the average weight for both age and height. The indications from this method are that the shorter and younger children may be far more than seven per cent under weight without being characterized as dangerously undernourished.

Again it has been shown that during August, September, October, and November boys made 55.3 per cent and girls made 59.8 per cent of the total gains made during the year. Complete tables for different groups should also take into account this seasonal fluctuation. Intensive nutritional work carried on in the late winter and spring month has often been decidedly discouraging because of this factor.

The "Pelidisi" system is considered briefly. Its use in America has proved of rather doubtful value.

Finally, the basic difference between retardation and defective nutrition must be kept continually in mind in assessing weight to age and weight to height.

A. R. A. to Feed Millions of Russian Children

Three million children will be fed in the Southern Ukraine this winter by the American Relief Administration according to announcement by Walter Lyman Brown, director. The continuation of the work on this scale has been made possible largely through the additional contribution of $1,250,000 from the American Jewish joint distribution committee.

Epidemics are particularly severe in this area, thousands of cases of cholera being reported in a single city. This area is fighting by an inoculation campaign for some 10,000,000 people throughout all Russia and by a sanitary offensive which includes purification of local supplies, cleaning cities, and keeping hospitals and other institutions well stocked. The work in the Ukraine is at present under Colonel William R. Grove, assisted by Dr. Boris Bofen, who will continue to direct it next year.

Red Cross Roll Call

The Annual Roll Call of the American Red Cross, in which its membership is renewed from year to year, takes place in the period between Armistice Day, November 11, and Thanksgiving Day. This is the only appeal that the National Organization makes during the year; and is for the purpose of maintaining its membership at such a point as will enable it to perform those duties which are placed upon it by Congress.

St. Louis Recreation Program

THAT the physical and recreational welfare of an urban people depends largely on community efforts to supply an outlet for pent up energies is coming to be an axiom and in late years municipal governments recognizing this fact have established playgrounds, swimming pools, golf courses, tennis courts, and community centers for its citizens.

So important does St. Louis consider the recreation of its residents that it maintains a division of parks and recreation within its department of public welfare for the planning of athletic contests and the maintenance of playgrounds, parks, and community centers. Approximately $200,000 was spent during the fiscal year ending April 1, 1921 for maintenance of such activities and over four million persons participated.

Baseball, the most popular game, has grown in attendance from 400,000 in 1914-15 to one million participating in 1921 and was maintained at a cost to the department of $6,962.88, being a per capita cost of $0.0069. Soccer attendance increased from 190,000 in 1914-15 to 600,000 in 1921 with a maintenance cost of $2,054.20, per capita cost of $0.0034; golf was participated in during the year by 164,036 at a cost to the department of $18,719.09 or a per capita cost of $0.114; tennis with 218,710 participants cost the department $12,299.05 or $0.056 per participant.

The four public baths and four swimming pools had an attendance during the season of 898,106, the total maintenance cost being $92,418.48.

Besides these major sports, the Municipal Athletic Association conducted contests in swimming, track, field sports, basketball, field hockey, amateur boxing, rowing, bicycling, and horseshoe pitching. The thirty-two playgrounds served 1,812,707 children during the year at a cost of $67,151.16. The thirteen Community Centers were attended by 270,685 at a total maintenance of $16,665.73. The automobile tourist camp from July 15 to November 10 accommodated 1,336 tourists. Shower baths and good toilet facilities were erected for their comfort and double camp stoves built.

The city also cooperated with the St. Louis Chapter of the American Red Cross in maintaining a camp for anemic children recommended by various charitable organizations

A step forward in food sanitation was the passing of an ordinance placing the operation of refreshment stands in parks under this division. Cleaner stands and better food resulted from this change, the revenue reverting to the municipality.

St. Louis' recreation problem is that of every large city,—the facilities not keeping step with the demand. "Less than ten years ago our parks and playgrounds afforded ample opportunity for play and recreation to those interested," states Rodowe H. Abeken, superintendent of recreation. "In the last three years the interest and enthusiasm have grown to such an extent that all our recreational facilities are overtaxed at least 250 per cent."

"To reach every child in the community St. Louis should maintain seventy playgrounds instead of only thirty-two; more swimming pools are needed; a Municipal golf course on property adjoining O'Fallon Park as well as one in Carondelet Park should be laid out; tennis courts provided with lights for night play should be built to relieve the congestion on the present courts; the number of baseball diamonds is totally inadequate."

The Subject of Dietetics

THE dietitians as a special group date their existence only five years back, but their importance as a health organization and as a subsidiary body to therapeutic organizations is sufficiently attested by the range of topics covered at the fifth annual meeting of the American Dietetic Association held October 16-19 in Washington, D. C. The administration of dieto-therapy requires as careful checking and observation for its effects as for its initiation. It is not surprising, therefore, to see increasingly high standards of training imposed upon dietitians, or to observe that their fifth national meeting was addressed by such authorities on nutrition as Drs. Mary S. Rose, Alfred Hess, E. V. McCollum, Wm. S. McCann, L. H. Newburg, Elliot P. Joslin, and Walter Cannon.

The proper discharge of the dietitian's responsibilities is no routine measure. In the case of children, as so well advocated by Dr. Ruth Wheeler, the nutritional program spells health and normal development. The racial factors of diet and resultant predispositions to disease were well exemplified in the report of findings in China by Emma Gunther of Teachers' College, Columbia University, and in the Italian dietary survey reported by Gertrude G. Mudge, chairman, Committee of Italian Dietary Survey. It is becoming necessary to study not only the patient and his economic and sociological background but food idiosyncrasies and certain mental attitudes as affecting the dietaries that may be defective require of the food expert a well rounded preparation.

The following officers were elected for the ensuing year: President, Octavia Hall, Peter Bent Brigham Hospital, Boston; first vice-president, Mrs. Hallie Corsette, U. S. Public Health Service, Washington, D. C.; second vice-president, Miss Effie Raitt, Washington University, St. Louis; secretary, Miss Breta Luther, Children's Hospital, Boston; treasurer, Miss Anna Boller, Chicago.

Street Sanitarians Meet in Chicago

The International Association of Street Sanitation Officials at their annual meeting in Chicago, October 9, discussed many topics of vital interest to health. A round table discussion was held on methods of garbage, rubbish, and ash collection. Incinerating reduction of garbage was discussed by Clifton H. Fisk of St. Louis and Mat Miser, superintendent of streets and sewers, Philadelphia, Pa.

The difficulties of certain traffic conditions as affecting street cleaning were fully canvassed. The concensus of opinion seemed to be that this hindrance can best be met through police power and official cooperation. The question of newspaper cooperation and help from civic bodies and from school children in promoting help among citizens themselves in the matter of municipal housekeeping was held to be an important one. Automotive equipment was recommended in the interests of economy and efficiency in street cleaning either for rubbish or snow.

Wages, the use of equipment, and the suitability of uniforms, were likewise discussed and an interesting session was devoted to department organizations for recreation. The newly elected officers included W. J. Galligan, Chicago, president, and Theodore Eichorn, Geary, Pa., treasurer.

A High School Social Center

THE advantages of operating a social center in a high school have been set forth in the high school social center maintained by La Salle-Peru-Oglesby, Ill. Through this joint arrangement a maximum of use is secured from the equipment, for the building is in use from early morning until late at night. During the morning and early afternoon the gymnasium, swimming pool, and dressing rooms are used by high school students, and at noon high school students use the reception room, reading and game rooms. From 3:30 p. m. to 10 or 12 p. m. the building is open to the public. The high school and social center both use the same athletic grounds.

A second economical advantage is the fact that members of the social center staff can also serve as high school teachers. The director teaches economics and sociology in the high school and together with his assistant has charge of the high school boys' gymnasium classes. The instructor for women and girls teaches the high school girls' gymnasium classes. Another important advantage is the fact that the older high school boys and girls can be used as Social Center attendants. About fifteen students are employed at 20 cents an hour. This amount often enables students to remain in school who otherwise would not be able to do so.

The social center of the Tri-Cities was the gift of the late F. W. Matthiessen who in the early days established one of the great zinc companies in that region. In order that the center might remain as a permanent structure in the community and to assure public interest in its welfare, a condition of its donation was that it should be supported by public taxation.

The social center is housed in a two-story and basement brick building adjacent to the township high school and connected with it by a covered passage. At the time of the erection of the new building, the gymnasium on the ground floor of the high school building was converted into an auditorium and the high school structure in part remodelled and completely renovated. The cost of maintaining the center is approximately $9,000 a year which sum is paid from the high school educational funds. Though no attempt has been made to make the center self-supporting, activities in large part pay for themselves and rental fees collected for the use of the party room and gymnasium cover practically all incidental expenses.

In connection with the social center building there is a large athletic field of eleven acres. The field includes a five-lap cinder track, a baseball diamond, football field, and jumping and vaulting pits. On the south side of the field is a concrete grand-stand with a seating capacity of five hundred. It is equipped with a drinking fountain and men's and women's toilets. Nearby are two tennis courts. Adjoining the athletic field, which is used mainly by men and older boys, and which has been named in honor if its donor, Mr. Matthiessen, is the playground for the use of the smaller boys and girls. The playground is simply equipped and includes a baseball diamond, and basketball and volley ball courts.

The high school social center serves the three towns in the township. They are typical industrial centers, many of the inhabitants being foreigners. As a result of the demand for unskilled labor, boys and girls often leave school as soon as the law allows. Recreation for this group is especially imperative. Until the establishment of the Social Center no attempt had been made by the public to provide recreation for either adults or children and commercial recreation of unsupervised character flourished.

The Social Center Recreation building adjoins the high school and is used by students and public alike.

The social center has had cooperation of the health department and the associated charities of the three cities. The health department has been of use in solving the problems of sanitation in regard to swimming pools and has examined swimmers to detect weak hearts and communicable disease.

A series of home nursing classes was held at the social center under the direction of trained nurses. First aid classes under the direction of men from the Mine Rescue Station and the Hygienic Institute (Health Department) were also held. Frequent lectures are given on health and social hygiene topics.

COMPLETE oral hygiene as practised by nurses and other attendants is not only recognized as good administration, but is a necessary precautionary measure adopted by medical directors, superintendents and superintendents of nurses in the safeguarding of patients.

Interest in sanitary, healthy mouths of hospital personnel grows steadily. The subject will receive even more attention in the future.

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Examination of Food Handlers

FROM a public health point of view the main concern in regard to the physical condition of food handlers is not that they be free from physical defect but that they be free from diseases which they may easily communicate during the course of their duties. Tests, therefore, should be based on the discovery and elimination of those suffering from tuberculosis and venereal diseases and those who prove to be typhoid or diphtheria carriers or in the incipient stages of these diseases.

Such a sanitary examination would include only the chest examination for tuberculosis, the skin for contagious disease, nose and throat for diphtheria, a routine blood test for typhoid, and in males, the examination of external organs for venereal diseases. This routine examination would provide the minimum safeguards against infection by food.

The many reports of tuberculosis and venereal disease among cooks and waiters in the city of Newark, N. J., led to the establishment of special clinics by the Division of Food and Drugs which were transferred to the Division of Tuberculosis of the Department of Health. Authority for this procedure was contained in New Jersey State Sanitary Code, Regulation 37 which states that "any waiter, cook or other person employed in any hotel, restaurant, boarding house, or other place where cooked food is offered for sale, who handles or prepares food, may be required to submit to a physical examination by a medical inspector of any local board of health or of the State Department of Health for the purpose of ascertaining whether or not he is affected by any communicable disease, whenever in the judgment of the health officer such examination may be necessary."

The procedure in the clinic is as follows: The Division of Food and Drugs arranges for the examination of the food handlers and issues a food handler's card, good for a period of six months after the approval by the Division of Tuberculosis. This latter Division conducts the whole examination with the aid of clinic physicians detailed from the Division of Contagious Diseases and the Bureau of Venereal Disease. No card is issued without the requisite report from the clinics.

All food handlers were brought under the surveillance of the department by a city ordinance passed in 1918 which provided that all food handlers with the exception of those handling meats or foods ordinarily peeled or cooked before eating should present a certificate from a physician stating that such person was free from tuberculosis or any contagious disease.

The result of the Newark examinations is interesting. Since August 1920, 11,059 examinations have been made by the Department of Health. Among this number, not a single typhoid or diphtheria carrier was located. In regard to tuberculosis, 9 per 1,000 were found in 1920 and 1921 and only 6 per 1,000 in 1922. Among the 11,059 examinations only 37 cases of venereal disease were found. Only 54 skin eruptions were found, 42 the first year, twelve the second year and none the third year. The decrease in all these diseases is accounted for by the fact that the knowledge that such physical examination had to be undergone kept many diseased from applying. Vaccination was also required of all individuals.

Coincident with the opening of the Atlanta, Ga., public schools a dental clinic was established under the direction of Dr. John R. Kennedy, city health officer, and the school superintendent. Portable dental chairs are used. Days are set aside for examination of the children's teeth in respective schools. Recommendations are to be made to the family dentist as to any dental defects, and if the parents are financially unable to pay, the work will be performed free by the school dentist, according to the school board's plan.

Public Health in China

By FRANK L. MELENY, Peking Union Medical College, Peking, China.

IN ALL countries, the history of governmental interest in public health has been preceded by a period of private initiative. During the past twelve months there has been more general activity of a private nature in China than ever before in a similar period and it should not be long before it can be reported that there are definite government activities in this field.

This statement, however, is made guardedly because there have been so many spasmodic movements which have been started with the best intention but which have come to naught that it is not possible to say just how far the present movements will carry the country into a real, live stable, permanent and progressive public health policy. For instance, recent political events have interfered with the growth of the work of the health department so hopefully established by the defacto Southern Government in Canton. Similarly, political events of the past few months have materially affected the original plans of the National Health Association whose organization was reported last spring. Perhaps the most significant step has been the filling of chairs of hygiene in the three foremost medical schools in the country, namely, in Peking, Changsha and Tsinanfu. Scarcely of less significance has been the organization of city health association in Shanghai, Nanking, Changsha, Tientsin, and Peking.

The most common specific health work being carried on in the various cities is along the lines of maternal and infant welfare. Under the auspices of the Council on Health Education, with headquarters in Shanghai, health institutes for this work have been conducted in Nanking, Changsha, Kuling, and Fengchow. An institute in educational hygiene, very similar to the one being conducted for the first time by Harvard this summer, was given in September by the Peking Union Medical College. Also, for the first time in the educational history of China, a section on school hygiene will be conducted at the national educational conference held in Tsinanfu, Shantung, in July.

In 1919 the Central Institute for Epidemic Prevention was created with the balance of a national appropriation to combat plague. This year, after the original money had been expended, the government authorized an annual budget of $120,000 from customs funds to continue the work under the auspices of the new Central Anti-plague Prevention Bureau. This is really a misnomer, for it is expected that the chief work of this Bureau will be to establish a government institution which will supply all kinds of serums and vaccines to the country to aid in the fight against disease.

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Bay City—D. Bendall Co
Birmingham—219 North 19th St.
Boston—Jordan Marsh Co.
Bridgeport—W. K Mollan.
Brooklyn—414 Fulton St.
Buffalo—829 Main St
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Charlotte—221 Piedmont Bldg
Chicago—4750 Sheridan Rd., Room 214; 30 E Randolph St., Room 502
Cincinnati—The McAlpin Co.
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Dallas—Leon Kahn Shoe Co.
Davenport—R M Neustadt & Sons
Dayton—The Rike Kumler Co
Denver—224 Foster Bldg
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Fall River—D. F Sullivan
Fitchburg—Wm C Goodwin, 242 Main
Fort Dodge—Schill & Haberlein
Galveston—Fellman's
Grand Rapids—Herpolsheimer Co.
Hagerstown—Bikle's Shoe Shop.
Harrisburg—Orner's, 24 North 3d St.
Hartford—88 Pratt St
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Seattle—Baxter & Baxter
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Springfield, Mass.—Forbes & Wallace
Stamford—L. Spelke & Son
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Toledo—LaSalle & Koch Co.
Topeka—The Pelletier Co.
Trenton—H M Voorhees & Bro.
Tulsa—Lyons' Shoe Store
Utica—Room 104 Power Bldg
Waco—Davis-Smith Bootery
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Interdependence of Life Medical Directors

An insurance medical director of some prominence is quoted in *The National Underwriter* to the effect that life insurance medical directors are much more influenced by the methods being pursued by other companies than formerly.

He asserts that the independence of action and thought that characterized the handling of the life insurance medical department in the past is less in evidence now. He attributes the change to the experimenting in substandard cases that is being done by so many life companies at this time.

In giving his views he said:

Life insurance medical men are being disturbed every day by what competing companies are doing. Here is what happens. A case is presented to me for examination. I find a defect sufficiently serious to warrant me in turning the applicant down. Accordingly, I decline to issue a policy.

A little later I learn that another company has granted the applicant insurance without rating him up. This sets me to wondering. I try to see why the company issued a standard policy. Knowing that the applicant should not have a standard policy I come to the conclusion that the company is doing experimenting along substandard lines, and then try to follow the other medical director's line of thought. I attempted to see why he would take the case, and what he expects to develop. I am influenced by the case, because when a similar one is presented, I am perhaps more inclined to take it on some basis than I was before. I am following the experimenters.

Medical requirements are more liberal than formerly. Companies are studying impaired risks with the idea of writing as many as possible. The medical director who followed the old rule-of-thumb methods is going out of favor. Today life insurance companies are insisting that their medical directors experiment and find out what they can do with certain types of impairment. All of this means that life insurance medical men can no longer pursue a strictly independent course. They must take cognizance of what other companies are doing. The effort to do this is upsetting individual standards, and is bringing a liberality of attitude that would have been unthinkable, even ten or fifteen years ago.

Measles, a Serious and Widespread Disease

"Long association with measles has bred a contempt for it but its dangers are none the less severe," states Dr. W. C. Rucker, Surgeon of the United States Public Health Service, in a bulletin of the service. About 10,000 American children died of the disease in 1920. This does not include a large number who died of bronchial pneumonia, many juvenile cases of which were caused by measles. Approximately 60 per cent of all deaths from bronchial pneumonia occur in children under five years of age, a time of life when measles is most likely to occur. But the story of the ravages of this disease is not complete, Dr. Rucker continues, without mention of the large number of cases of tuberculosis which follow it. Less frequently inflammation of the ear or the eye may be left behind as a mark of a visitation of this common disease. From a public health standpoint, then, measles is a disease of prime importance.

Measles, in common with other diseases of childhood, has come to be looked upon as an unavoidable accompaniment of youth. Each autumn when school opens there is an increase of measles and as the season progresses they gradually increase and winter frequently sees the disease spreading in epidemic form.

At present, the disease is distributed over the entire habitable globe, from Iceland on the north to Tierra del Fuego on the south, states Dr. Rucker. It occurs most often and most severely in the colder months, probably because at such times people are more closely crowded together under more insanitary conditions. When introduced among a people who have never suffered from it before its ravages are frightful, as in the case of the inhabitants of certain of the Fiji Islands, who, upon being exposed, fell ill and died by thousands, so that it is estimated that 20,000 deaths occurred in four months.

In 1917 three states had a death rate from this disease of more than forty per 100,000, and several cities had even a higher rate. The death rate for measles for the registration area of the United States in the period 1911 to 1919 has ranged from 3.9 per 100,000 in 1919 to 14.3 in 1917.

The death rate among those attacked varies from one-half to 1 to 35 per cent. If it is estimated that the death rate is 1 per cent, and the number of deaths from measles in the United States in the year 1920 was 10,000, then it would follow that in that year at least 1,000,000 children suffered from this disease. When it is considered that perhaps 30 per cent of these children were of school age, and that the disease occurs most often in the months of school attendance, then it will be seen that approximately 300,000 children were kept from school from six weeks to two months on account of measles. Leaving out of consideration the death and suffering produced in this way, this is a serious economic loss.

It is thus seen that measles is many times a very severe disease, one which cannot be dealt with lightly, one to which we should not expose our children. The longer one can put off having measles the better, because the younger the child is when it has the disease, the more likely it is to die, and the more likely it is to suffer severe effects from it even if it does not die. The most fatal period is from two to five years of age.

China Health Posters

Attractively colored educational posters are being used in China by the Council on Health Education under the direction of Dr. W. W. Peter, secretary.

On the reverse of the posters are instructions, printed both in Chinese and English. On the poster on teeth

are set forth the proper method of brushing the teeth, the substitution of salt in boiled water when paste or powder is not available, the factors favoring, and the factors inhibiting decay. It also states that "China has too few dentists. This is another reason for taking good care of one's teeth."

Another poster carries directions for thorough mastication, for the avoidance of constipation, and for the use of special chopsticks or spoon and never one's individual utensils when serving food.

Metatarsalgia and Callouses Caused by Weakened Transverse Arch

This condition is recognized by depression of the Transverse Arch anteriorly or at the base of the Metatarsal bones. The dome-like arching is obliterated and painful callosities or corns form over the depressed Metatarsal heads. The foot broadens, the toes become dorsal flexed. Bunions appear at the First and Fifth Metatarso-Phalangeal articulations. Digital nerves become impinged and severe cramp-like pains are experienced through the toes. This is described by Whitman as Morton's Toe.

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Sex Education in Favor in U. S. Schools

That the majority of educators favor a conservative school program of sex education was revealed by a questionnaire sent out by the Cincinnati Social Hygiene Society to one thousand deans of schools of education, principles of normal schools, superintendents of education, physicians and nurses. Approximately 498 replies were received.

The courses in which such instruction is given include social hygiene, anatomy, embrology, ethics, literature, and sociology. The total number of students reached in the grades is 6,770; in high schools, 146,981; in normal schools, 83,433; in colleges, 92,108. The attitude of both parents and students has been found to be largely favorable to some form of sex education. The principal methods of presenting the material to the students is by assignment for recitation with an informal talk, or lecture followed by private talks with individuals.

Lethargic Encephalitis Epidemic in Poland

A comparatively mild epidemic of lethargic encephalitis occurred in Poland in 1917. Following this no outbreak of epidemic proportions appeared until 1920 when, during the latter part of February and the first of March, at a time when the influenza epidemic of that year was on the wane, the disease again appeared in unusual quantity. Reporting was made compulsory on March 11 and questionnaires sent to the physicians in the country. In spite of the errors and omissions in the statistics compiled from these sources, they are believed to represent with a fair degree of accuracy the salient features of the epidemic. A report was made to the Office International d'Hygiène Publique by Dr. Chodzko, delegate to Poland, and published in the July issue of the *Bulletin Mensuel.*

The peak of the epidemic was in Warsaw during the month of April. The spread of the disease was to the south and east and in these districts the greatest severity was experienced in the late spring and summer months. Several cases were reported as late as November and a total of 1,374 cases and 264 deaths were recorded. Twenty-six per cent of the cases among males were in the age period from thirty to thirty-nine while among females the age groups from fifteen to nineteen and from twenty to twenty-nine each contained nearly 27 per cent of the total number of cases among females. No cases were reported among males below five or over fifty-nine years of age while the female cases ranged from two years of age to seventy-two.

The clinical aspect of the epidemic is dealt with at some length in the report which states that the cases observed divided themselves into three categories, each having a rather distinct group of symptoms. The native doctors expressed themselves negatively on the question of a possible relationship with the preceding influenza epidemic. No constant time interval was found between the attacks of influenza and encephalitis in the history of patients that had contracted both diseases.

Germany Enacts Venereal Disease Law

The German venereal disease law, advocated by many social-hygienists in that country, which has been under discussion for some time, has now passed through the Reichstag. This law, reports the Social Hygiene Bulletin, provides for continuity of treatment and makes an offender who spreads venereal disease, knowing or suspecting that he or she is in an infectious state, liable to three years imprisonment. Treatment is to be free for those who cannot afford to pay, and the patients are obliged to submit to treatment for as long as the medical authorities consider necessary.

A further provision concerning penalties for exposure of persons to disease will protect wet nurses and the babies put out to nurse. Other clauses provide penalties for the quack and for the medical practitioner who undertake treatment by correspondence. They also prohibit offensive and misleading advertisements.

Obligations are imposed on the doctor who undertakes to cure venereal disease; he must give each patient instruction as to the nature of the disease, and in the case of patients under age, must inform their parents or guardians. Lastly he must explain the new law and its penalties to the patient. The German Society for Combating Venereal Disease approves the law.

The Relation of Physical Defects to Sickness

A statistical study by Selwyn D. Collins of morbidity among 3,786 Missouri school children appeared in *The Public Health Reports*, September 8, 1922, under the above title. This study was an attempt to discover what relation if any existed between certain physical defects common to children of school age and the number of days of absence from school.

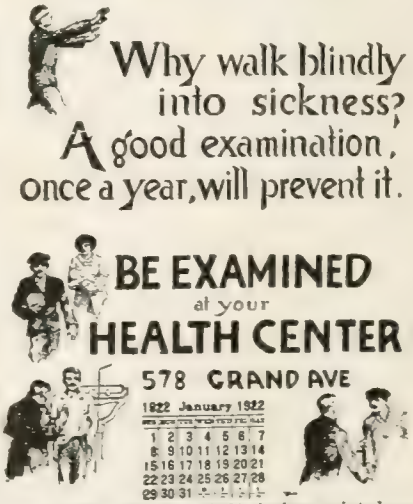
The multiplicity of combinations of defects that will be encountered in a study of this nature necessitates condensation to avoid an unwieldly detailed classification. In this analysis seven groups were employed. The basis of comparison was the percentage of the total school days lost by the various groups. This percentage of school days lost is given for all the groups studied by absence on account of sickness and by absence on account of causes other than sickness.

It was shown that children with no defects lost less time from school on account of sickness than those with defects. Those with enlarged or diseased tonsils were absent more than those having no recorded defects. Children having other defects associated with enlarged or diseased adenoids or tonsils were absent more than those with enlarged or diseased tonsils only. Decayed teeth appeared to have little or no effect on the time lost and defective vision failed to show any consistent influence.

Absence from causes other than sickness varied much like the absence from sickness; the group with no defects showed the lowest percentage of days lost.

A permanent mental health clinic has been opened in Wilkes-Barre, Pa., under the direction of Dr. Horace V. Pike of the Danville State Hospital.

Health Poster Calendar



Poster calendar 18x21 inches printed on pale blue background with black ink and touches of red, prepared for popularizing the idea of health examinations by the New Haven Health Center.

No Growth Without Vitamines

The Bio-Chemical Laboratory of the University of Cambridge recently conducted an exhaustive investigation to determine whether the vitamines known to be present in the raw materials from which VIROL is manufactured were present in their active state in the manufactured VIROL as sold to the public. This report which fully proves the presence of the vitamines in VIROL will be sent to any medical man on application.

Advantages of VIROL

It contains the vitamines.
It is a well balanced food.
It is easily absorbed in the most delicate conditions.

VIROL exercises a remarkable influence on growth and development. It is a food of great value for expectant and nursing mothers, in anæmia, malnutrition, and all wasting conditions.

VIROL

Sole Agents for United States
Geo. C. Cook & Co., Inc., 59 Bank Street, New York

Bread Standard and Baking

THE Joint Committee on Definitions and Standards has recommended the adoption of standards for breads for the guidance of Federal and State officials in enforcing food laws, according to a statement issued by Dr. W. W. Skinner, chairman of the Joint Committee.

The standards recommended do not become effective under the Federal Food and Drugs Act, a bulletin of the United State Department of Agriculture explains, until they have been formally adopted and published as a food inspection decision by the Secretary of Agriculture, nor do they become effective under State food laws until formally adopted or acted upon by the authorized State representatives. The standards are announced by the committee in advance of their formal adoption, so that no hardships may be worked upon the industries affected. The text of the recommendations follow:

"Bread is the sound product made by baking dough consisting of a leavened or unleavened mixture of ground grain or other clean, sound, edible farinaceous substance, with potable water, and with or without the addition of other edible substances. In the United States the name 'bread,' unqualified, is understood to mean wheat bread, white bread.

"Wheat bread, white bread dough is the dough consisting of a leavened and kneaded mixture of flour, potable water, edible fat or oil, sugar or other fermentable carbohydrate substance, salt and yeast, with or without the addition of milk or a milk product, of diastatic or proteolytic ferments, and of such limited amounts of unobjectionable salts as serve solely as yeast nutrients and with or without the substitution of not more than 3 per cent of the flour ingredient by some other edible farinaceous substance.

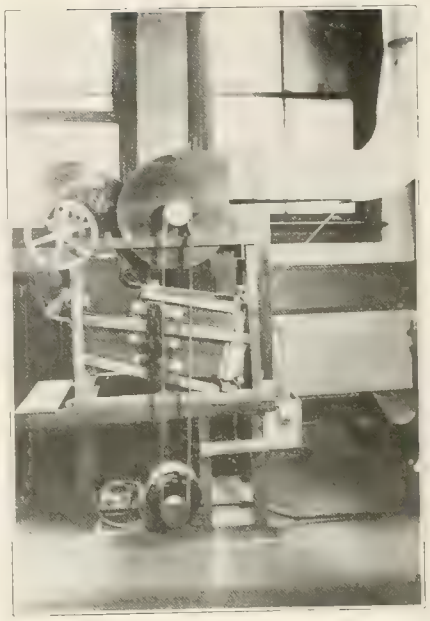
"Wheat bread, white bread is the bread obtained by baking wheat bread dough in the form of a loaf or of rolls or other units smaller than a loaf. It contains, one hour or more after baking, not more than 38 per cent of moisture, as determined upon the entire loaf or other unit.

"Milk bread is the bread obtained by baking a wheat bread dough in which not less than one-third of the water ingredients has been replaced by milk or its equivalent. It conforms to the moisture limitation for wheat bread.

"Rye bread is the bread obtained by baking a dough which differs from wheat bread dough in that not less than one-third of the flour ingredient has been replaced by rye flour. It conforms to the moisture limitation for wheat bread.

"Raisin bread is the bread obtained by baking wheat bread dough, to which have been added sound raisins in quantity equivalent to at least three ounces for each pound of the baked product and which may contain proportions of sweetening and shortening ingredients greater than those commonly used in wheat bread dough.

"Brown bread, Boston brown bread is a bread made from rye and corn meals, with or without flour, whole wheat flour, rye flour, with molasses, and in which chemical leavening agents, with or without sour milk, are commonly substituted for yeast. In some localities the name brown bread is used to designate a bread obtained by baking a dough which differs from wheat bread dough in that a portion of the flour ingredient has been replaced by whole wheat flour."



The Experimental mill which has been installed in the laboratories of the Department of Agriculture in Washington where experiments with wheat and other grains are being conducted. The experimental mill turns out the flour which is used in the department's bakery where its actual quality is determined by its conversion into bread under standardized conditions.

Electric ovens, part of the experimental equipment of the Department of Agriculture.

Birthrate Declines in U. S.

The birth rate is declining and the death rate increasing, according to statistics made public today by the Census Bureau covering the first quarter of the year. The birth rate in the states from which comparative figures were available showed an average of 23.3 for each thousand of population in the first three months of 1922, against 25.3 in 1921, while the mortality average in the registration area in the first quarter this year was 13.7 against 12.6 in the same period last year. North Carolina, with 29.2, reported the highest birth rate for the three months this year, and the State of Washington, with 16.5, the lowest. The District of Columbia had the highest mortality rate, with 17.6, and Wyoming the lowest, with 9.6.

Just completed!

Three separate investigations by competent authorities on the results of yeast therapy

What happens to the living yeast cells in the alimentary tract?

Has fresh yeast any marked tendency toward laxative action?

What is its effect on the leucocyte count?

Investigations into these and other phases of yeast therapy have recently been completed.

It is now definitely established that fresh yeast *is absorbed in part by the system, and produces a marked increase in leucocytes, thus aiding in the correction of suppurated conditions.*

It has also been demonstrated that yeast, after passing into the intestine, *softens and increases the bulk of the feces by absorption of moisture, and produces a distinct laxative effect.*

Detailed reports of this work will be given the medical profession in the near future.

There is still data to be gathered on the inter-relation of yeast and alimentary bacteria; and further investigations, sponsored by the Fleischmann Company, are now in progress.

A new authoritative book: written by a physician for physicians. This brochure discusses the manufacture, physiology, chemistry, and the therapy of yeast. A copy will be sent you free upon request. Please use coupon, addressing THE FLEISCHMANN COMPANY, Dept. Y-11, 701 Washington Street, New York, N. Y.

New brochure on yeast therapy sent on physician's request

The Fleischmann Company,
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Please send me free a copy of the brochure on yeast based on the published findings of distinguished investigators.

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Sanitary Meat Market in Alabama

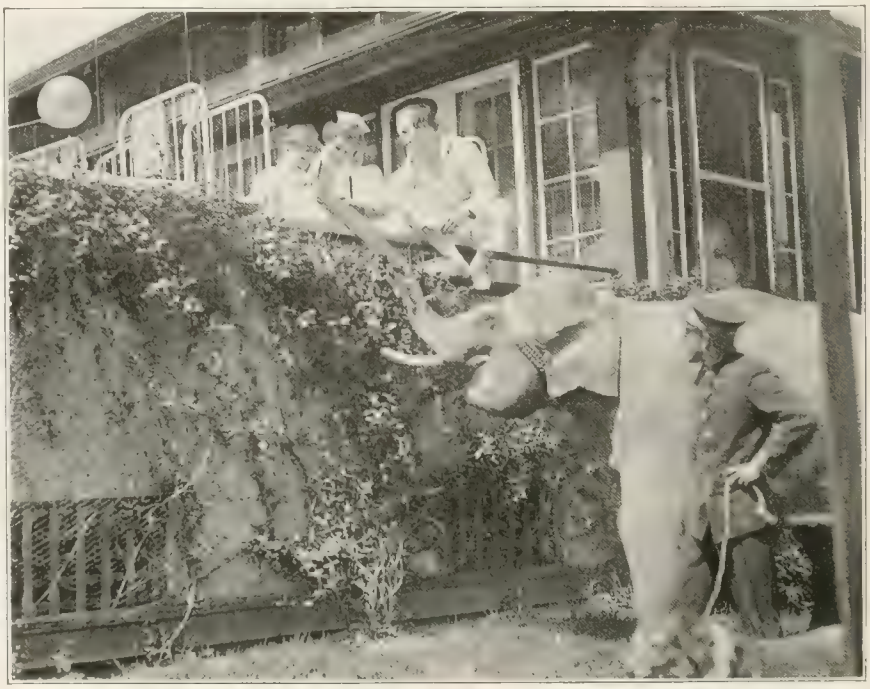
Meat market in Edgewater, Ala., showing proper screening which prevents contamination from flies and handling.

Tuberculosis: Tracing Sources of Infection

Three types of tubercle bacilli, known respectively as the human, the bovine, and the avian are now definitely recognized in the causation of tuberculosis, but their distribution among the various species of animals is not easily demarked, for the human type is not confined to man, or even to mammals, nor the avian type to birds, while the bovine type occurs in a large variety of animals, not excepting man himself. The distinction between the types, questions of susceptibility and of natural resistance to the several types, and opportunity for infection by the specific type therefore assume the highest importance in combating tuberculosis.

The rôle of the three types of tubercle bacille in human and animal tuberculosis, the stability of types, and relative virulence under varying conditions and changing hosts constitute the material of a lecture recently delivered by Dr. Louis Cobbett before the Royal Institute of Public Health in London, and reported in The *Lancet* of May 20, 1922. It is a curious fact that the rabbit is almost the only mammal which shows any great susceptibility to infection by the avian type of bacillus. Cobbett divides the mammals into two groups according to susceptibility to infection with the human type of tubercle bacillus. "To infection with the bovine type all mammals are probably more or less susceptible, and no animal—with the single and doubtful exception of man—is known to be more susceptible to infection with the human type than with the bovine type. A certain group of animals, including man, dog, guinea-pig, monkey, and other foreign mammals, are susceptible to natural infection with both mammalian types of tubercle bacillus. The other group contains practically all our domesticated mammals, except the dog." The donkey is the most resistant to tuberculosis of all our domesticated mammals. Among birds, swans, geese, and ducks are resistant. Foreign animals kept in captivity seem to be infected at least as often with the human as with the bovine type of bacillus. With the dog especially, opportunity for infection with one type of tubercle bacillus is more important for consideration than are the differences of virulence for the animals of the types themselves. The rat and the mouse are mentioned as a possible means of spreading infection of the avian type from one poultry farm to another. As to the possibility of changing one type to another, Dr. Cobbett does not consider it proved that modification from one type to another occurs, but says that cases of apparent change become less as experimental conditions have been improved. His figures on the relative extent of bovine infection in man are based on the assumption of stability of types. Excessive incidence of bovine tuberculosis has been reported from Scotland. American figures stand between those of England and Scotland. While he was unable from data on hand to give world figures, he was obliged to conclude that there is probably a very considerable difference in the proportion of bovine infection in different countries. From a tabulation of the deaths attributed to tuberculosis of all kinds, about 6.5 per cent are due to bovine bacilli, probably in the majority of cases the infection coming through milk.

Therapeutic Agency of Elephant and Clown



Keystone View Company, Inc.

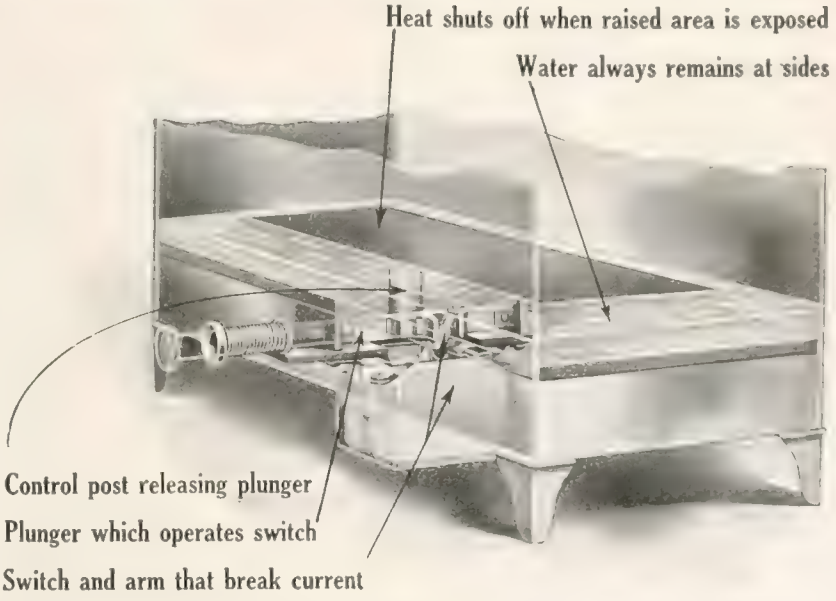
The elephant and clown, the trick pony and dog did their bit recently in maintaining the morale of the sick children at the Children's Hospital, Boston, and their antics furnished practical illustration of the therapeutic value of laughter.

The New Castle Sterilizer

Without Fuse Pins

Good as Castle Sterilizers have been, they are even better now. The new automatic cut-off operates without fuse pins—and *before* the water is all gone. The diagram shows you how.

CASTLE


Heat shuts off when raised area is exposed
Water always remains at sides
Control post releasing plunger
Plunger which operates switch
Switch and arm that break current

New cut-off available on most units. Ask your dealer to show you, or write us.

WILMOT CASTLE COMPANY, 1153 University Ave., Rochester, N. Y.

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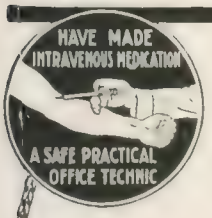


ACCEPTED BY THE COUNCIL

LOESER'S INTRAVENOUS SOLUTION OF MERCURY OXYCYANIDE, 8 Mgs.

A sterile, stable solution in nonsoluble glass ampoules, 5cc containing 8 mgs. ½ grain of Mercury Oxycyanide

LOESER'S INTRAVENOUS SOLUTION OF MERCURY OXYCYANIDE, 12 Mgs.

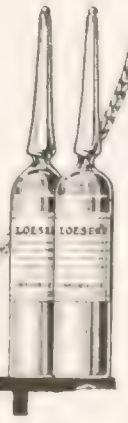
A sterile, stable solution in nonsoluble glass ampoules, 5cc containing 12 mgs. ¾ grain of Mercury Oxycyanide

We offer these solutions to the medical profession as a means of carrying on intensive mercurial treatment of syphilis.

The objections to the intramuscular method, lack of uniform absorption, irritation, induration and abscesses, are overcome by the intravenous administration.

The superiority of these solutions of Mercury Oxycyanide over the intravenous administration of the so-called acid salts of mercury, bichloride, biniodide, etc., is due to the fact that they are less apt to cause irritation of the veins, a common fault of most soluble mercury compounds.

Clinical Reports, Reprints, Price List and "The Journal of Intravenous Therapy" sent to any physician on request.



NEW YORK INTRAVENOUS LABORATORY

100 West 21st Street NEW YORK, N. Y.

Producers Ethical Intravenous Solutions for the Medical Profession Exclusively.

Management of the Sick Infant

For the first time in the history of American pediatrics a book has been devoted entirely to the treatment and management of the sick infant. It is interesting to see a textbook that does not follow the general outline adopted by textbook writers such as etiology, pathology, symptoms, diagnosis and treatment.

Langley Porter and William E. Carter have succeeded in giving a general view of all diseases of infancy without putting it in a narrow frame. The line of treatment advocated by these two authors is modern and up-to-date. It is evident that the authors have based their views on experience gained in many years of practice. The book constitutes a contribution to pediatrics. It is a volume of value to the practising physician and at the same time is intelligible and of value to nurses and those responsible for the institutional care of sick children.

C. V. Mosby Company, St. Louis, 1922.

Backwaters of Lethe

"Backwaters of Lethe" by G. A. H. Barton is a delightful little booklet in which the author discourses in a dreamy manner on the various phases of anesthesia. The book has no index, there is no bibliography, nor is the reader met with stern, cold lists of statistics.

The author has sunk into a large arm chair and from its comfortable depths through blue clouds of fragrant pipe smoke narrates to the reader in delightfully unpedantic phrases a surprisingly large number of most practical facts concerning anesthesia.

Paul B. Hoeber, New York, 1922.

Surgical Nursing by Russell Howard

A series of lectures delivered to the nurses at the London Hospital forms the basis of "Surgical Nursing" by Russell Howard. The book contains in a brief summary the underlying principles of modern surgery and describes these in a manner a nurse can understand and appreciate.

Howard realizes that in order to carry out instructions not only intelligently but with interest the nurse must understand the why and wherefore of these orders. Moreover, there are times when a nurse is forced to act on her own initiative, and in these instances a clear conception of conditions is of course essential. The present edition, the fourth, has been thoroughly revised.

Edward Arnold, London, 1920.

Protein Therapy and Non-Specific Resistance

Only a few years have elapsed since the attention of students of immunology and practising physicians was directed to the possibility of non-specific reactions in infectious diseases. During these years much scientific thought has been lavished on this subject, and perhaps more unscientific propaganda have been spread. In America two names stand out prominently as leaders of the scientific inquiry into the nature of non-specific resistance,—Jobling and Petersen.

"Protein Therapy and Non-Specific Resistance," by William F. Petersen, represents the results of his work and is a most interesting presentation. To those whose thoughts have failed to penetrate into this mystery Petersens' book will prove valuable; to those practitioners who are ready to use non-specific therapy without regard to underlying principles, Petersen's discussion should be even more valuable.

Macmillan, New York, 1922.

A Volume on Obstetrical Nursing

The book, "Obstetrical Nursing" by Carolyn Conant Van Blarcom, R.N., contains an enormous amount of information. It has value not only as a textbook for nurses but as a text, or at least a reference work, for physicians as well. The style is very pleasing and the literary quotations from many authors are very interesting. The author possibly overstepped her boundary by including in the book material that properly belongs to a textbook on pediatrics. The pediatric material, however, is well chosen and as a whole, well written.

The Macmillan Co., New York, 1922.

The Book of Life, Mind and Body

A hodge-podge of scientific fact and pamphleteering is Upton Sinclair's recent book "The Book of Life, Mind and Body." The volume serves to spread on paper all the theories concerning mental and bodily well-being that the author has accumulated in a lifetime.

Just how a man who wrote so effectively in "The Jungle" and "The Brass Check" could turn out "The Book of Life" is a mystery. In "The Jungle" and "The Brass Check," he was at least familiar with the field; but for a layman to write seemingly authoritatively in the medical and public health field leads only to disaster.

The first section, "The Book of the Mind," dabbles with "Mother Eddy's" theories, with spiritualism, and with the accepted psychology. "The Book of the Body" dwells at length on diet, fasting, and vegetarianism as cures of many ills. It would seem that a book dealing with health subjects requires a more dignified treatment than the personal vein which the author employs.

The Macmillan Company, New York, 1921.

Public Health Agencies in New York

The New York County Chapter, American Red Cross, through its Health Service, announces the publication of a Directory of Health Agencies in New York City.

This directory covers 97 agencies and 12 branches in the five Boroughs. When the local Chapter of the Red Cross first compiled a tentative list of public health agencies in New York County, it was only a 16-page pamphlet. The present directory, revised and enlarged so as to include all the boroughs of the city, contains 44 pages. In addition to the table of contents the directory contains a classification index, there are also a subject index and a personnel index.

New York County Chapter, A. R. C.

Principles of General Physiology

William Maddock Bayliss has been a leader in physiology for many years. He is one of the most outstanding figures among English physiologists. In the third edition of his book, he has treated general physiology both as a scientific and philosophical subject. It is not a book for the general practitioner but rather is it a reference book for a scientist who wants to be informed on advanced knowledge of physiology.

Among the many other interesting side lines in Bayliss' book in his historic knowledge and the numerous photographs of physiologists of various ages.

Longmans, Green & Company, London, 1920.

4 MONTHS' RESULTS

A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

GROUND GRIPPER
WALKING SHOES

She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.

"GROUND GRIPPERS" are the ORIGINAL muscle-developing health shoes for Men, Women and Children. They are universally recommended by physicians and surgeons. Instead of imprisoning arches and toes, they flex naturally with your feet in every part—at every step. Nerve pressure is relieved—stagnant circulation quickened—weak muscles strengthened—painful swellings reduced—deformed bones straightened. Feet are completely restored to normal shape, vigor and comfort. And these results are permanent.

"GROUND GRIPPERS" are imitated but never duplicated

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Send for our Medical Booklet on Feet—FREE

SEEING IS BELIEVING

Immediately—with no mental effort, the dullest audience grasps the most intricate lessons in hygiene when driven home by motion pictures. Truly in this modern method of dramatizing facts—seeing is believing.

The DeVry
Portable Projector

With the De Vry Portable Projector and Generator, motion pictures may be presented anywhere—in the mountains of Tennessee—the back woods of Canada—or in the heart of a modern city. The De Vry uses standard film, assuring a constant supply of literally thousands of reels of subjects available on all phases of health and hygiene. The De Vry is a sturdy, wear defying projector, light in weight, throwing a flickerless picture of theater quality anywhere, under the most adverse conditions. Mail the coupon below for a copy of our book, "One Hundred and One Uses of the De Vry."

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Please send me your book "One Hundred and One Uses of the De Vry." It is understood that this places me under no obligation.

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Labor Problems and Labor Legislation

In "Labor Problems and Labor Legislation," John B. Andrews, secretary of the American Association for Labor Legislation, New York City, has presented a brief summary packed into 135 pages of the historical development and present status of the more important branches of industrial health and welfare. The task would seem to be an impossible one but the author has accomplished it with extraordinary success. The high points in connection with unemployment, wage legislation, hours of labor, industrial safety and sanitation, self-government in industry, social insurance, and the enforcement of labor laws are touched upon with a balance and skill which make it a fascinating introduction to the subject for the open-minded industrialist or social worker and which give it a real value even to the specialist in these fields. One might have desired a trifle more consideration of the problems of industrial tuberculosis and of current tendencies toward industrial democracy but the book as it stands deserves a place on the shelves of every intelligent student of industrial problems. Excellently selected illustrations add to its popular value.

Sewerage and Sewage Disposal

In 1914-15 Leonard Metcalf and Harrison P. Eddy published "American Sewerage Practice" in three volumes. These books were excellent for general engineering practice, but were not well adapted to ordinary class room use. To meet this class room need they now publish a textbook "Sewerage and Sewage Disposal," which is an abridgment of their three earlier volumes. The greater part of the work of condensation has been done by John M. Goodell, for many years editor of the *Engineering Record*. In the abridgment, changes have been made and new information introduced in order to bring the book thoroughly up to date. The authors state that they "are engineers, not teachers, hence this textbook reflects the engineer's rather than the teacher's view point."

The book opens with a chapter on general features of sewerage and sewage treatment works in which are given definitions as recommended by the American Public Health Association. There are also included in this chapter brief discussions of the influence of topography and method of disposal on the general sewerage plan. The following two chapters are on quantity of sewage and quantity of storm water. In each of these chapters are illustrative problems with maps showing the application of the principals explained. A chapter on hydraulics of sewers presupposes a knowledge of hydraulics. In this chapter are several diagrams and tables for the rapid solution of the ordinary type problems. This is followed by chapters dealing with appurtenances, investigation, construction, and inspection.

Almost half the book is given over to sewage disposal. There is first a chapter on chemical and biological characteristics of sewage. This is, followed by chapters on the different methods of disposal. The chapter on sludge is rather meager. The book ends with a chapter on cost estimating. No attempt is made to give cost data because of the lack of reliability under present conditions. The book is well illustrated.

In the preface the authors state as their purpose "to prepare a book, giving information which they consider desirable for the young student to acquire before taking up work in this field. In this textbook they have fulfilled their purpose and the student or young engineer will find here a book which well meets his needs.—ROSCOE H. SUTTIE, Yale University.

McGraw-Hill Book Co., New York, 1921.

Transformation of the Intestinal Flora

In view of the commercial exploitation, the popular interest, and the scientific investigation aroused by attempts at altering the bacterial flora of the intestinal tract, Leo F. Rettger and Harry S. Cheplin's review of the subject and concise summary of their own experimental investigations is of value.

The greater part of the book is given over to the experimental work of Rettger and his collaborators and to discussion of the results obtained. The latter may be briefly summarized as establishing the fact that it is possible to implant B. acidophilus, a normal member of the intestinal flora usually present in small numbers, in the intestinal tract and that the usual mixed or putrefactive flora may be changed to one in which B. acidophilus predominates by the simple addition of lactose or dextrin to the food.

The experimental work upon rats and man with B. bulgaricus invalidates completed the belief that this organism can be implanted in the intestinal tract.

The practical conclusions to be drawn are, first, that it is possible to transform the normal or abnormal putrefactive flora of the intestine into a less variegated one in which B. acidophilus predominates. This change may be brought about best by the combination of carbohydrates in small doses with living cultures. Secondly, that the altered flora reverts to the normal mixed type upon the return to a diet which does not contain sufficient amounts of lactose or dextrin. Thirdly, that the use of B. bulgaricus for the purpose of transforming the flora appears to be a useless procedure for which there is no experimental support. The preparation of a B. acidophilus milk or broth, which shall actually contain viable organisms, is a laboratory procedure which will not easily lend itself to commercial methods.

Yale University Press, New Haven, 1921.

Meeting Your Child's Problems

Every child is a problem in himself. There are certain questions, however, that can be answered in a general way. Though the book by Miriam Finn Scott by no means answers all the problems that confront parents or teachers, still there are a number of questions that are discussed in a clear cut manner. At times the author uses too many examples to illustrate her point. Most of the illustrations, however, read quite well.

Little, Brown & Company, Boston, 1922.

Tuberculosis and the Community

Tuberculosis has come to be known as a sociologic problem. Even the laity realizes now that a tuberculous person is not only a problem to himself, but also to the community. So far, however, we have had no monograph dealing with tuberculosis as a communal problem.

The book "Tuberculosis and the Community," by John B. Hawes, 2nd, M.D., therefore, fills a want in medico-sociologic literature. The author discusses, among other things, the question of hospitals and sanatoriums for consumptives; the aftercare of the consumptive; the relation of tuberculosis to the school child, to housing, and to occupation.

Lea & Febiger, Philadelphia, 1922.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of THE NATION'S HEALTH, published monthly at Chicago, Illinois, for October 1, 1922.

State of Illinois, } ss
County of Cook }

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared Dr. O. F. Ball, who, having been duly sworn according to law, deposes and says that he is the president of The Modern Hospital Publishing Co., Inc., and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: The Modern Hospital Publishing Co., Inc., Chicago, Illinois.

Editor, Dr. C.-E. A. Winslow, New Haven, Connecticut.

Associate Editor: S. P. Moore, Chicago, Illinois.

Business Manager: James G. Jarrett, Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

The Modern Hospital Publishing Co., Inc., Chicago, Ill.; Dr. O. F. Ball, Chicago, Ill., F. M. Bailey, Chicago, Ill., James G. Jarrett, Chicago, Ill.; Alfred P. Sloan, New York, N. Y.; James M. Ball, St. Louis, Missouri; N. E. Ball, St. Louis, Missouri.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees, or other security holders.

O. F. BALL, President.

Sworn to and subscribed before me this twenty-second day of September, 1922.

[Seal] J. P. McDERMOTT, Notary Public.

My commission expires August 9, 1925.

Arhovin

No matter what your favorite local treatment in Gonorrhea and its complications, you can render it more *promptly* and more *permanently* effective by supporting it with internal Arhovin medication.

For over fifteen years, Arhovin has successfully taken the place of santal oil and balsams in the practice of a host of specialists and general practitioners, because it does not irritate the stomach, or kidneys, nor impart a tell-tale odor to the breath.

Furnished in tins of fifty capsules, each 4 minims.

Dosage: One or two capsules, three to six times daily, after meals.

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Frank P. Norbury, A.M.M.D., Medical Director.

Albert H. Dollear, B.S.M.D., Superintendent.

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FROM THE FIELD

Free medical advice and treatment and use of the recreational facilities of its five story club building are accorded members of the Spanish Society at its center 24 West Sixteenth Street, New York City. The society also maintains a free hospital bed for members. Plans are under way to build a hospital at an estimated cost of $200,000. A nucleus of $12,000 has already been raised.

Shoes will be built in the future more along health lines was the concensus of opinion at an open forum of the New York State Retail Shoe Dealers' Association recently in session at Albany. The brogue for men will be popular while high heels on women's shoes are being displaced by the Cuban and Spanish heels which are broader and flatter, the shoe dealers state.

The Toronto Institute of Hygiene is proposing to undertake a special inquiry into the subject of the poisonous action on the workers employing a spray of fumes arising from the volatile substances like turpentine, benzin, or benzol contained in paint mixtures.

A new attempt to establish a permanent safety museum in the United States has been made by Commissioner Clifford B. Connelley of the Pennsylvania Department of Labor and industry. Complete plans for an International "Safety First" exhibit have been laid before the committee in charge of Sesqui-Centennial Exposition to be held in Philadelphia in 1926. It is hoped that a permanent building for housing the international safety exhibit will be built. Commissioner Connelley established a safety exhibit at Carnegie Institute of Technology, Pittsburgh, where he was for many years the Dean of the School of Applied Industries.

The training of health visitors in Scotland is discussed in a general way in a memorandum issued by the Scottish Board of Health. The specialized instruction course is to cover not less than one and a half years and should follow a student's intermediate or secondary school course. It should include elementary anatomy and physiology; general hygiene; personal and clinical hygiene; public health administration; social science and economics; office work; dietetics and household management. On the practical side not less than two and one-half years are to be spent in hospital or other work of a similar nature.

Detroit has assigned to its department of health from ten to fifteen uniformed policemen as a sanitary squad who are kept continually busy inspecting alleys and yards for the elimination of nuisances. Faulty disposal of garbage is found not only in the poorer districts where lack of facilities encourage uncleanliness but is also evident on the best residence streets. The department urges that vacant lots, instead of being regarded as fit repositories for waste, should be converted into playgrounds.

In the past four years largely through the efforts of the Canadian National Committee for Mental Hygiene, provision for the insane and mentally defective has increased to such an extent that Canada stands well up at the head of the nations. The Provinces of Canada have spent $5,125,000 in the last four years on buildings and equipment for the care of the insane, feeble-minded, and defective.

At the request of Health Commissioner Fronozak of Buffalo, the Division of Vital Statistics of the New York State Department of Health has made a special preliminary report on the infant mortality of Buffalo. This study was also undertaken because of its bearing upon the state-wide campaign for saving the lives of mothers and babies, as inaugurated by the department under the provisions of the Davenport-Moore act, which was passed by the Legislature and approved by Governor Miller last March.

According to this report, as prepared by Dr. Otto R. Eichel, Director of the Division of Vital Statistics, the death rate from preventable causes under one year of age has declined in Buffalo from 140 deaths for each 1,000 births in 1900 to sixty-two in 1919. During the same period the rate from diseases classed as non-preventable has remained virtually stationary.

In this favorable showing the infant mortality of Buffalo corresponds closely to that of New York, which has one of the best records in this respect of any large city in the world. This inquiry into the Buffalo infant mortality involved computing and charting the mortality under one year of age from each cause for each year from 1900 to 1919 for Buffalo, and also for New York City, to make possible comparison with the latter as a standard. This study is intended to be only a first step in a thorough analysis of the mortality of Buffalo for use by the state and local health departments in formulating their programs.

Plans to improve the condition of Indians, with particular regard to health and education, are being worked out by Commissioner Burke of Indian Affairs with the approval of Secretary Fall. An increase in the estimates for the Indian Bureau probably will be asked in the next Indian appropriation bill.

The Polish Minister of Public Instruction has issued a circular to school authorities prescribing in detail measures for the care of school children's health and measures against epidemics and contagious diseases among school children, and directing the establishment of school playgrounds. The minister has also ordered lectures on hygiene for parents and children.

How to reconstruct their devastated lives is the great problem now facing more than four million Jews in Europe outside of Russia according to Dr. Lee K. Frankel, chairman of the special commission sent abroad last June by the American Jewish Relief Committee. "The medical program of the committee is going ahead as fast as funds will allow," stated Dr. Frankel. "The erection and repair of public baths is highly important, particularly in the smaller communities, and I find that close to 250 more baths must be rebuilt. The importance of these baths cannot be over estimated. More x-ray stations must be established as well as special schools for the education and training of nurses. It is most encouraging to note the splendid work of the American doctors connected with the committee, some of whom have been at their posts for more than a year at a time without relief. Several have gone through typhus epidemics."

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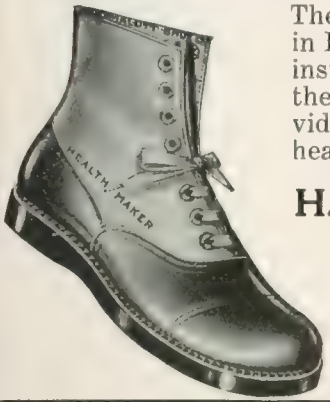

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The Harvard School of Public Health, established last year as the result of the endowment received from the Rockefeller Foundation, which will ultimately amount to more than $2,000,000, opened this fall for the first time. During the first half year Dr. Roger I. Lee, Professor of Hygiene, will serve as Acting Dean of this school in the absence abroad of Dr. David L. Edsall, Dean of the Medical School. The faculty of the school includes Drs. Richard P. Strong, Milton J. Rosenau, Lawrence J. Henderson, George C. Whipple, Cecil K. Drinker, and Prof. Edwin B. Wilson.

The School of Public Health has purchased for its headquarters the Rotch Memorial Building, but probably will not occupy the building until next spring. At present the School of Public Health is housed in the Medical School Buildings.

The new school is the outgrowth and continuation of the school jointly conducted by Harvard and the Massachusetts Institute of Technology since 1913, and will include certain departments, such as those of industrial hygiene and tropical medicine, which hitherto have been a part of the Harvard Medical School. It will be closely associated with the Medical School.

The American Red Cross, at the request of the Interior Department, recently assigned three trained nurses to the Indian Bureau for one year, as the first step in Commissioner Burke's program. In addition, plans for enlarged school facilities to educate 20,000 children of school age not now in school are being worked out. Approximately 6,000 of this number belong to the Navajoe tribe and have never been to school. One nurse will be stationed on the Pine Ridge and Rosebud Reservations in South Dakota; the two others will go to the Southwest, and work among the different Indians in Arizona and New Mexico.

"The Interior Department and the Indian Bureau are giving much attention to health conditions at the several Indian schools and upon the different Indian reservations," says Commissioner Burke, "and the present policy is to try to have at least one hospital on every reservation with a capacity sufficient to care for the sick, and particularly for Indians who are very aged and infirm and without means or homes where they can be comfortably and properly cared for."

Statistics as to child labor in the United States in 1920 have been published by the Bureau of the Census, under the title "Occupations of Children." In the nine tables of this publication are shown the number and proportion of children gainfully occupied in the United States in each of the divisions and states, in the principal cities, and in specified occupations; and the distribution of these children by age, sex, and population class.

An investigation of the causes of maternal and infant deaths during the past year in Massachusetts will be the first feature of the new program of the division of hygiene of the Massachusetts Department of Public Health. For the purpose of carrying on this work two physicians and a vital statistician have been added to the staff. A supervisor and a staff of five nurses will soon be attached to the division, whose main purpose will be to stimulate prenatal and infant care.

At the suggestion of the Prussian Ministry of Social Welfare the Public Health Academy of Charlottenburg, Germany, has decided to establish courses in social dentistry as supplements to the courses in public health. The course was held from June 12 to July 8. Besides general instruction in public health, the dentists were taught methods of dealing with children of pre-school and school age. Special attention was given to children's diseases connected with defects of the oral cavity. At the East German Academy of Public Health in Breslau a course in social dentistry was given from June 19 to July 1. This course consisted of general and special lectures and seminar work in public health, social medicine, social legislation, social welfare work, and similar subjects of interest to the dentists.

Germany is adopting American psychologic methods in industry writes the Berlin correspondent to *The Journal* of the American Medical Association, and the head committee of the Prussian legislature has adopted unanimously the suggestion of the Minister of Public Welfare that a state institute for the study of labor problems and industrial hygiene be created. By training motormen in accordance with modern scientific principles, the Greater Berlin Street Railway Company effected a saving of 12,000,000 marks for the last fiscal year and also decreased materially the number of accidents. The men were also trained in one-third the time formerly required.

A study of mercury poisoning by Dr. R. R. Sayers of the United States Bureau of Mines shows poisoning from mercury to be of common occurrence both in the mining and the smelting of this metal, although by far the greater number of cases are found among the employees about the reduction works.

The principal causes of poisoning are poor ventilation and failure to prevent the escape of mercury from furnaces, condensers, and retorts, and uncleanliness on the part of the workmen. In addition to these causes there is a wide variation in the susceptibility of different persons. The use of alcohol and tobacco seems to increase both susceptibility and severity of symptoms, while women and children and tuberculous individuals are considered to be most easily affected.

Measures recommended in the report for the prevention of poisoning include the provision of adequate general and exhaust ventilation; of respirators, of one shower bath for every ten employees and one washbasin for every five; individual lockers; lunch rooms; physical examinations of applicants for employment, excluding drinkers, those having tuberculosis or those in poor physical condition, and persons under eighteen years of age; periodic physical examination at least every six months; and instruction to employees as to the dangers of mercurial poisoning and methods of avoiding it. The necessity for strict personal cleanliness and for keeping in good physical condition is emphasized.

The Committee on Public Health of the Massachusetts Medical Society has arranged a program of lectures to be given by specialists before district medical societies of the state. Lee Hamilton, M.D., 164 Longwood Ave., Boston, is in charge of the lecturers.

Twenty-five thousand dollars was allowed Dr. Royal S. Copeland, Commissioner of Health of New York City, by the Board of Estimates to fight diphtheria during the coming year. For the diphtheria bureau Dr. Copeland was allowed five physicians, five nurses, two bacteriologists, two laboratory assistants and eight helpers. The work of the bureau will be to prevent the disease by means of the Schick test and toxin-antitoxin treatment.

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A notable step has been taken at Yale University in the appointment of Dr. W. C. Rappleye as Superintendent of the New Haven Hospital, affiliated with the Yale School of Medicine. Dr. Rappleye, it will be remembered, prepared the report of the committee on the training of hospital executives appointed by the Rockefeller Foundation and his appointment guarantees a development of the New Haven Hospital as a social institution on the most broadly conceived lines.

The annual state conference of the Minnesota Catholic Hospital Association will be held at Rochester, Minn., December 5 and 6.

The Illinois State Department of Public Health plans to place a district health superintendent on the program of every teachers' institute scheduled to be held in the state during the remainder of 1922. The object is to obtain the closest possible cooperation of the school authorities in the medical examination of children. A definite method for making practical medical examinations will be presented to the teachers in pamphlet form.

Dr. Marion Dorset, Chief of the Biochemic Division of the Bureau of Animal Industry, Department of Agriculture, will cooperate in an unofficial and consultative capacity with the Anthrax Advisory Committee of the International Labor Office, Geneva, Switzerland. Dr. Dorset has been connected with the Department of Agriculture since 1894 and has held his present office since 1904. The date of convening this committee has been fixed for December 5 at Geneva.

The Illinois State Department of Public Health is initiating a campaign to immunize young children against diphtheria without reference to the Schick test. This procedure is the outcome of a meeting of thirty public health officials which was held at the Pageant of Progress in Chicago, August 2, 1922.

The Life Extension Institute, Inc., during the past year has secured contracts from seven life insurance companies for the annual examination of their policy holders. The Metropolitan Life Insurance Company, in a statistical study of cases examined, found a reduction in mortality of 28 per cent among the policy holders examined by the Institute in 1914 and 1915 and a reduction of 67 per cent in the mortality of those found to be impaired. The Institute has referred its examinees to family physicians for treatment representing fees amounting to between five and ten millions of dollars.

Plans are nearly completed for turning over as a free gift the common stock of the Institute to several leading universities in order that the control of the Institute will ultimately be in the hands of the trustees of these universities.

A Congress of Hygiene will be held in Strassburg, Alsace-Lorraine, France, in the spring of 1923. Dr. Borrel, professor of hygiene at the University of Strassburg, is organizing the congress and is in charge of the exhibits.

John Ritchie has been employed as part time publicity director for the Massachusetts Tuberculosis League. Mr. Ritchie was for years Health Commissioner of Boston and later editor of the *American Journal of Public Health*.

In an effort to promote industrial undertanding the National Personnel Association has appointed committees to conduct inquiries into various fields of industrial relations. F. P. Pitzer, superintendent of employment and service, Equitable Life Assurance Company, has been appointed chairman of the health education committee.

Atlanta, Ga., is establishing an open air school for children whose health might be impaired in indoor class rooms. The school will be part of the public school system.

Laurel, Miss., has been chosen as the site for a health unit by the International Health Board of the Rockefeller Foundation. A five-year program will be started immediately with a view to stamping out malaria. The unit will also serve as a training ground for members of the Rockefeller Foundation preparatory to service in foreign subtropical fields.

Comparing the standards prescribed by state child labor laws with the standards of the federal child labor tax law which was declared unconstitutional May 15, 1922, it is found that the laws of the following thirteen states measure up in all particulars to the standards of the federal law: Alabama, Connecticut, Illinois, Indiana, Kansas, Kentucky, New York, Ohio, Oklahoma, Oregon, Tennessee, West Virginia, and Wisconsin. Certain other states come fully up to one or more of the standards but fail in regard to others. The states which fall below the federal standards in all respects are Delaware, Mississippi, and Wyoming.

At the annual meeting of the American Occupational Therapy Association held in Atlantic City the following officers were elected: Mr. T. B. Kidner, president; Dr. G. Canby Robinson, Baltimore, vice-president; Mrs. Elenor Clark Slagle, secretary-treasurer. Dr. William R. Dunton, Jr., Baltimore, is chairman of the committee on publicity and publications.

With the cooperation of the U. S. Bureau of Labor Statistics, the International Joint Conference Council of the allied printing industry, representing both employers and employees, has authorized a nationwide health survey of the printing trades. The survey, which it is expected will take two years, includes every phase of the industry bearing directly or indirectly on health, physique, and physical efficiency.

The Housing Division of the Indiana State Board of Health has added to its staff an inspector whose entire time will be given to inspecting and scoring rural homes. It is expected that he will inspect and score five hundred homes in different parts of the state in one year.

The Kansas Division of Water and Sewage is making an extensive investigation to determine the degree and sources of pollution of the Kansas River.

The Massachusetts Legislature has appropriated $15,000 for use in "extending the activities of the Division of Hygiene in the protection and care of mothers and conservation of the welfare of children." This amount is to be expended during the remaining months of the current year.

During the past year the seventeen workers of the Mothers' Allowance Commission of Canada paid 18,290 visits to 2,660 beneficiaries. Of this number 2,320 were widows, 268 wives of the totally incapacitated; 54 the wives of men presumed to be dead; and 18 foster mothers. The Commission prevented the breaking up of many homes and the scattering of many families.

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The National Junior Sports League has recently been formed by men prominent in the world of sport for the purpose of promoting clean sport among the boys and girls of this country between the ages of 8 and 18. The league makes the backyard, side street and vacant lot the playground, and the question of equipment is solved in every community. It, however, also plans to work with the physical directors, scoutmasters, Y. M. C. A. physical directors, camp directors and those who are working with boys and girls. If a boy has passed a test in the Boy Scout movement, the Red Cross Society, the Y. M. C. A., schools and similar organizations equivalent to that of the National Junior Sport League, it will not be necessary for him to pass another test.

Six thousand persons in nine Michigan institutions are being cared for by the Michigan Department of Health according to figures given out by Dr. R. M. Olin, commissioner. The department of health began dental work in penal and correctional institutions in May, 1921 and since that time complete dental surveys have been made in ten institutions and department dentists have visited and worked in twelve. During the first year 26,210 operations were performed at a cost of 47 cents each.

A new opportunity for specialized training for nurses at Montefiore Hospital, New York, is reported in *Better Times*. The new training school will lay special emphasis on the preparation of nurses for the care of patients suffering from chronic diseases. Special courses will be given in hydro-therapy, mechano-therapy, electro-therapy, occupational therapy, and tuberculosis nursing. Eight months training at Bellevue Hospital is also included in the course which lasts two and one-half years and leads to the degree of Registered Nurse.

The *Journal of Physical Chemistry* is to be published under the auspices of the American Chemical Society, the Chemical Society of London, and the Faraday Society of Great Britain. Francis P. Garvan, president of the Chemical Foundation, has guaranteed $10,000 annually for five years to the publication, it was reported to the council.

According to the agreement between the Rockefeller Foundation and the government of Honduras, a hookworn disease section and a public health department have been organized in that country. The Foundation will bear 66 per cent of the expense during the first year and 34 per cent during the second, and the Honduras government will assume all expense from the third year on.

A silver loving cup, the gift of an anonymous New Yorker, has again been awarded to the state of Iowa. The cup is awarded yearly to the state whose schools have the highest percentage of total population successfully completing the Modern Health Crusade. The National Tuberculosis Association stated that the Iowa schools had won five out of eleven first prize banners and sixty-eight out of 182 second prize pennants.

Dr. Gleason C. Lake of the U. S. Army Medical Corps arrived recently in Phoenix, Ariz., to conduct a campaign against the Malta fever epidemic which has appeared during the last three weeks in the Salt River Valley. With the outbreak of the epidemic, the state superintendent of health wired the federal authorities for an experienced officer to assist in handling the situation, and Dr. Lake was given the commission. The appearance of Malta fever in Arizona is regarded as curious. Fifteen cases appeared in a short time, with one fatality. Acting on the theory that milch goats are carriers of the germ, a herd of 500 goats from which Phoenix obtains its supply has been placed under quarantine, and the sale of goat's milk stopped by the city authorities.

The hygiene institute for the University of Leipzig is organizing a German Gesellschaft fur Gewerbe-hygiene. The leading men in the movement are Prof. K. R. Lehmann, director of the hygiene institute at Wurzburg, Dr. Koelsch, and Dr. Laymann of the state department of labor, Dr. Gottstein of the state department of public welfare, and representatives of employers and employed in the various industries.

The International Union against Tuberculosis, which recently held its session in Brussels, has announced that the 1926 meeting will be held in the United States in connection with the sesquicentennial of Philadelphia. The next meeting will be held at Berne, Switzerland, 1924. Dr. Theobald Smith, director of the Rockefeller Foundation animal research laboratory at Princeton, N. J., is president-elect for the American conference.

A permanent school of army hygiene will be established at Aldershot, England, to carry on the lessons in hygiene learned during the war.

The Rural Sanitation Office of the United States Public Health Service reports that there are 203 counties throughout the United States that have a local health service under the administration of whole-time county or district health officers.

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Academy of Medicine Contributes to Health

New York Committee Pioneers in Health Methods for Organized Medical Societies

BY E. H. LEWINSKI-CORWIN, PH.D., EXECUTIVE SECRETARY, PUBLIC HEALTH COMMITTEE, NEW YORK ACADEMY OF MEDICINE, NEW YORK CITY.

THE code of medical ethics, adopted in 1847 by the American Medical Association, recognizes physicians as conservators of public health and declares that "it is a delicate and noble task, by the judicious application of public hygiene to prevent disease and lengthen life, and thus to increase the productive industry, and without assuming the office of moral and religious teaching, to aid the civilization of an entire people." Early in its history the New York Academy of Medicine stated in its constitution that one of its four objects was the promotion of public health; and in 1852, following the precept quoted above, it created a standing committee on public health. In 1858 a section on public health and legal medicine was established, which existed until April 26, 1911 when at its own request it was abolished by the Council of the Academy and replaced by a committee on public health. This committee under its present organization is the only organization of its kind in the world.

The academies of medicine of some of the European countries have an official status, obtain means for their maintenance from their respective governments, and are called upon at times by the governments to advise in matters pertaining to public health. Occasionally they undertake, on their own initiative, consideration of some public health problem, but none of the medical bodies abroad or in this country maintain a sustained interest in current public health problems, as they arise, or consider them from the broad point of view of municipal policy and in the light of accumulated thought and knowledge which comes from a continuous contact with the whole realm of public health.

Aside from the services rendered to the community, the Public Health Committee of the New York Academy of Medicine by its eleven years of work has established a tradition for the Academy, has revealed to the citizenship the practical idealism of the leaders of the medical profession, and has demonstrated the applicability of the objective survey to the domains of public health and administrative and educational medicine.

Advisory Body to City Health

The studies of dispensaries and hospitals is an illustration *par excellence* of the application of the method of the detailed objective inquiry which reveals existing conditions and strives by constructive criticism to improve them. Such were the studies of the health unit plan organization of the Health Department, of the contagious-disease hospitals of the Department of Health undertaken ten years ago, of the conditions at Quarantine Station, of the Bureaus of Records, laboratories and child hygiene of the Department of Health. Incidentally, I may add that in connection with the study of the last named bureau, the committee was the first, to my knowledge, to set a standard ratio of physicians and nurses to school population in the work of medical school inspection of children. Of a similar character were the studies of health conditions in the police force of the city, pollution of the harbor, the protection of the Croton watershed, of the value of open air tenement houses, air space in institutions for infants, malnutrition among school children, and of street cleaning during the course of which were collected all available data on the pathogenicity of street dust.

In addition to studies and surveys, the Committee has given to the community its collective opinion on the value of many proposals and such administrative procedures as quarantine of measles, typhoid immunization, reporting of venereal disease cases, reporting of cases of encephalitis lethargica, segregation of mental defectives, tonsil and adenoid operations, control of typhus fever, drug addiction, factory health inspection, oligogenics, popularly known as birth control, certified milk, twilight sleep, the need and character of the state census of population, etc.

The Committee answered every request made on the part of governmental and civic agencies for assistance in ascertaining facts, shaping policy, or aiding them in the discharge of their duties. The municipal Civil Service Commission called fre-

quently on the Committee for advice with regard to the selection of medical examiners, plan and scope of examinations, and bases for rating candidates. The city departments asked for aid in supporting their budget requests and for judgment with regard to the advisability of new or established procedures; the civic organizations are continuously appealing to the Committee for advice whether it be in planning a new experiment or in appraising the value of an established procedure. The committee was called upon to suggest remedies to check the increase in the prevalence of myopia among school children, to prepare standards for physical examination of children between the ages of 14 and 16 working in factories, to express an opinion on the advisability of employing teacher mothers in the schools, to prevent poisonings from wood alcohol, to stimulate the use of "occupational therapy," to aid in the work of codification of the state laws pertaining to child welfare, etc.

During the several epidemics which visited the city during the last decade, the Committee arranged special meetings at the Academy, and in statements issued to the public press dealt with what was known as to the causes of the epidemics and the methods of prevention. In addition to conferences on poliomyelitis and influenza, two regular meetings of the Academy, under the auspices of the Committee, were devoted to venereal diseases, two meetings to industrial diseases, one to food, one to dispensaries, and one to hospitals.

The numerous applications of medicine to broad social problems like workmen's compensation, health insurance, health centers, industrial medicine, treatment of the sick in the homes, and pay clinics, claimed a great deal of the time and thought of the Committee. Public health teaching in medical schools, extension of the medical course to five years, opportunities for graduate medical teaching, advancement of medical science, the question of autopsies, better utilization of hospital and dispensary facilities, and nursing and dental education have likewise been frequently discussed and commented upon. The recent tendency in medical practice known as "group medicine" has been made a subject of special inquiry.

The Committee has ever striven to raise the standards of medical practice to make it serve best the interest of public health. With the same aim in view it combatted all legislation injurious to the health of the community, like anti-vaccination, anti-experimentation on animals, the licensing of practitioners having no adequate preparation for the practice of medicine, the lowering of standards of civil service, and the like.

All the work done by the Committee could not but have its cumulative effect. Democracy does not function rapidly, changes are wrought imperceptibly. Moreover, that which is to endure does not grow fast. There are, however, a few definite achievements of the Committee which can readily be claimed. To mention only a few of them: (1) It was chiefly through the efforts of the Committee that the quarantine station at the Port of New York was turned over by the state to the Federal Government; (2) that dispensaries have abandoned the performing of tonsillectomies; (3) that the work of venereal disease clinics has been improved; (4) that an Association of Out-Patient Departments was formed and first attempts made to formulate standards for the conduct of clinics; (5) that the supervision of the poliomyelitis cases in the clinics during the post-epidemic period was continuous and payments by the New York After Care Committee made on the basis of this supervision; (6) that following the committee's dispensary survey, the Rockefeller Foundation appropriated a large fund of money for the improving of the dispensary service in the city and a Bureau of Dispensary Development was organized under the auspices of the United Hospital Fund; (7) that as a result of the survey of hospitals the Hospital Information Bureau was established in this city, also under the auspices of the United Hospital Fund, whose purpose it is to serve the community, the hospitals, and physicians with information concerning existing procedures and opportunities for further development. The aim of the Bureau is to collect, analyze, interpret, and make available facts and information bearing upon hospital needs and activities and the health interests of New York City; (8) that a health federation embracing all the health agencies of the city came into being and for several years played an important part in the budget making of the city departments dealing with health and hospitals. In 1913 that federation with the aid of the Committee published a very valuable study of an epidemic of typhoid fever in New York City; (9) that the Committee assisted in securing legislation abolishing the antiquated system of coroner and substituting the present competent office of Medical Examiner; (10) that numerous changes of procedure and policy were made by the city departments; (11) with the aid of the Bureau of Municipal Research, the committee gave a six weeks' course on public health administration at the Academy which was attended by a large group of workers from many sections of the country.

Child Health Current Study

One of the major studies on which the Committee is now engaged and which will probably take the larger part of the forthcoming year is that relating to child health. There is no one phase of social work which appeals to the public more than that of child welfare, and for no other phase of social work is it easier to raise funds than for that which concerns the child. As a result, a great deal has been started in this direction. There being no central directing agency, overlapping might easily have taken place. No one knows at the present time the extent of effort duplicated. No one knows which branches of child health have been adequately covered and which fields have been allowed to lie fallow. Furthermore, no one has attempted to evaluate the basic merits of the many activities comprised within the term "child health."

The study will likewise touch on the relation of private endeavor to municipal and state work. Should the private agencies limit their work to research, vigilance, and demonstrations, which, if proved to be of value, could be taken over by the municipality or state, or should they raise money to supplement activities which are recognized as municipal or state functions? And then, how far should the state or municipality go in providing care for the child—in other words, where should individual responsibility end and public responsibility begin? These are some of the questions with which the study of child health will deal.

The responses on the part of the public and the agencies concerned to all the requests and surveys of the Public Health Committee amply demonstrate the fact that the community is looking to the organized medical profession to supply leadership in the intricate social and public health problems lying on the border-line between civics and medicine.

Open air schools are maintained in the following towns in Indiana: Indianapolis, Fort Wayne, Evansville, South Bend, Goshen, and Marion.

Sewage Disposal for North Side Chicago

A RECENT report by H. P. Eddy, G. W. Fuller, and T. Chalkley Hatton in regard to the disposal of the sewage of the North Side District of Chicago will be of wide general interest to all sanitarians. The area considered includes a group of towns lying along the shore of Lake Michigan from Glencoe to Evanston with a present population of about six hundred thousand persons, estimated to reach 1,450,000 in 1960. The average sewage flow in 1960 is estimated at 325 million gallons per day with a maximum of 500 million gallons per day. The sewage is to be discharged through the north shore channel and the north and south branches of the Chicago River into the Drainage Canal and the conditions governing plans for its treatment are stated by the Commission as follows:

The north shore channel lies within a residential community and the north branch flows through a portion of Chicago which is, or ultimately will be, closely built up. It is important therefore that the sewage should be purified to a degree which will prevent the waters of the channel and the north branch from becoming unsightly and giving off objectionable odors, and to this end the future deposition of sewage solids must be prevented and an adequate supply of dissolved oxygen in the water must be maintained.

The maximum average rate of flow of diluting water in the north shore channel and north branch is inadequate at the present time to afford the proper dilution of the sewage entering them and to prevent the deposition of sewage solids.

The effluent from the north side treatment works will be discharged into the upper portion of the system of drainage channels and will flow for a long distance through the highly developed portion of the Sanitary District. There will be considerable time within which the organic matter may exert its demand upon the supply of dissolved oxygen furnished by the diluting water.

Our survey leads us to believe that the demands of the main drainage channel require the completion at an early date of a plant of the size proposed for the north side area and capable of producing a high-grade effluent.

As a result of our investigation, we are of the opinion that inasmuch as the north side treatment works are to be built forthwith they should provide for a relatively high degree of purification accomplishing the removal of the suspended solids, the oxidation of the remaining organic matter and the production of a comparatively stable effluent.

The Sanitary District of Chicago owns a tract of 207 acres in the Township of Niles suitable for the location of treatment works and it is planned to extend present intercepting sewers to bring the sewage to this point. These sewers will of necessity be so deep as to necessitate the pumping of sewage at the works.

Careful consideration has been given to all available methods and combinations of methods of sewage treatment, which may be subdivided into classes as follows:

Methods primarily for the removal of suspended solids such as fine screening, sedimentation and chemical precipitation;

Methods primarily for the oxidation of organic matter such as filtration through sand filters, contact beds, trickling filters and treatment by the activated sludge process; and

Methods primarily for the destruction of bacteria such as disinfection by the application of liquid chlorin, or by treatment with electricity.

From among these methods we have selected for study in detail those hereinafter mentioned which are capable of meeting the requirements, and which are practicable under local conditions.

Projects Studied in Detail

Preliminary designs and estimates of cost of two typical treatment works were made by the engineering staff of the Sanitary District and furnished to us, namely: (1) Imhoff tank-trickling filter works; and (2) activated sludge treatment works.

In the case of the Imhoff tank-trickling filter works, the sewage is first passed through coarse racks or screens for the removal of trash. The sewage is then pumped to grit chambers through which it flows at relatively low velocity to permit of the deposition of heavy mineral matter. The sewage then passes to two story sedimentation tanks, the upper compartment being so proportioned as to permit the deposition of a large proportion of the suspended solids. After deposition, these solids pass through slots in the bottom of the upper compartment into the lower or sludge digestion compartment, in which the organic matter is permitted to remain for a period long enough to enable the organisms living in it to change the organic matter so as to render the sludge inoffensive. From the Imhoff tanks the settled sewage passes through fine screens and thence to the distribution system by means of which it is sprayed through nozzles over the surface of the trickling filters which are composed of broken stone several feet in depth. In passing downward through these filters the organic matter of the sewage is oxidized through the action of living organisms.

The effluent from the filters then passes through settling, or humus tanks in which suspended solids contained in the effluent are deposited.

The effluent from these tanks is free from objectionable odor, practically colorless, and contains but a very small quantity of suspended matter. The organic matter contained in this effluent is oxidized to such a degree that the effluent is stable and entirely suitable for discharge into the north shore channel.

The sludge from the humus tanks is pumped to digestion tanks. The sludge from these digestion tanks and from the Imhoff tanks will be drawn off at frequent intervals during the warmer portions of the year and applied to porous sludge drying beds upon which the sludge is allowed to remain until it has dried sufficiently to permit of economical removal and transportation to waste land where it can be used for filling.

In the case of the activated sludge works, the coarse screen, the pumping station, and the grit chambers are similar to those features of the Imhoff tank-trickling filter works. From the grit chambers, the sewage flows to and through fine screens for the removal of a portion of the suspended matter which might be deposited in the aeration tanks and interfere with their operation.

After passing through the fine screens, the sewage receives a portion of the sludge previously formed in the treatment of other sewage, and then flows very slowly through the aeration tanks. These tanks are provided at the bottom with porous plates through which a supply of air is forced continuously. The air leaving these plates passes upwards through the sewage and thoroughly agitates it, besides giving up to it a portion of the oxygen in the air. This treatment causes the separation of the finely divided organic impurities in the sewage into small particles which readily settle when afforded a suitable opportunity. After aeration for a period of several hours the sewage passes out of the aeration tanks into sedimentation tanks in which it is held in a practically quiescent condition for a sufficient period to permit the subsidence of the flow formed in the aeration tanks.

The effluent from the sedimentation tanks is clear, free from objectionable odor and practically colorless and free from suspended matter. The organic matter dissolved in the effluent is oxidized to such a degree that the effluent is stable and entirely suitable for discharge into the north shore channel. By this treatment a large proportion of the bacteria is removed.

The portion of the sludge withdrawn from the sedimentation tanks which is not required for the treatment of the incoming sewage is pumped into presses, or other equipment, provided for the removal of a large proportion of the water, the reduction being approximately from 98 per cent to about 80 per cent.

After dewatering in this manner, the sludge is conveyed to dryers which further reduce the moisture to about 10 per cent. The dried sludge is then ground, sifted and bagged ready for sale as fertilizer.

These two methods of treatment,

and a modification of the latter, have been studied in detail by this commission. The basic allowances upon which the estimates have been predicated are stated in the description of the appropriate projects, and are in accordance with the experience and judgment of this Commission.

Filter Works

Project 1. Imhoff Tank-Trickling Filter Works.—This project provides for coarse screens for the removal of the large materials which might injure the pumps and other equipment.

It is necessary to lift the sewage about fifty-seven feet, for which an electrically operated pumping station is provided, with suitable standby equipment, or service, for use in case of interruption of the regular service.

Grit chambers are provided for the removal of heavy mineral matter that otherwise would be deposited in the sludge compartments of the Imhoff tanks, from which it could be removed only at substantial expense.

The Imhoff tanks are of such size as to retain the sewage for an average period of two and three quarter hours, for the deposition of suspended solids. The sludge compartment provides storage space of 2.3 cu. ft per capita.

The trickling filters are of broken stone 6.5 feet in depth and of a total area of 70 acres. These filters are designed to receive an average of 5,000,000 gallons of sewage per acre per 24 hours equivalent to 462,000 gallons per 24 hours per acre-foot of depth. With the rate of flow anticipated, this loading will be equivalent to the sewage from 11,430 persons per acre, or 1,750 persons per acre-foot of filter.

One of the objections to this type of filter has been that large numbers of little moth flies breed in, or near the surface of the beds. In some cases these flies have been the cause of considerable annoyance. Investigations made at Plainfield, N. J., in recent years, appear to have demonstrated that the breeding of these flies can be prevented by flooding the beds and allowing them to stand full for a number of hours. This project provides for this procedure and the area stated is based upon flooding one-seventh of the total area each day in rotation, thus providing for flooding the entire area once each seven days. This flooding is necessary only during the breeding season, which on the average may be taken roughly to be from April to October in this climate.

If the ten acres out of service be excluded from the computation, the loading of the remaining sixty acres will be at the rate of 13,330 persons per acre, or 2,050 persons per acre-foot. It is believed that the provision made for flooding the beds is sufficient to eliminate annoyance due to the moth flies.

The humus tanks provided are of the common single-story hopper bottom type, and of such size as to provide an average detention period above the hopper bottoms of one hour.

The project also provides two-story tanks for the digestion of the humus sludge. These tanks are similar in design to the Imhoff tanks, and their use may be confined to the treatment of the humus sludge, or the humus sludge may be mixed with a portion of the incoming sewage, so that the humus sludge and raw sewage sludge may be digested together, as may prove the more advantageous.

The sludge drying beds are of the type in common use, and have been designed to provide 0.75 square feet of net filtering area per capita. The total net area of the drying beds is 14 acres.

Equipment has been provided for removing the sludge after drying and transporting it in barges to suitable sites now owned by the Sanitary District along the Main Drainage Channel west of the City of Chicago where the sludge may be deposited upon ground of comparatively little value.

As it is impossible to spray sewage into the air, as is done in distributing it over the surface of the filters, without the escape of some odor, liberal provision has been made for the isolation of these very large works. The estimated cost of this project includes a sum believed to be sufficient for the purchase of enough land to provide a strip one-half mile wide entirely around the works making the gross area approximately one thousand seven hundred acres.

This provision for isolation necessitates placing the works in the center of the tract at some distance west of the North Shore Channel. This involves some changes in the proposed intercepting sewers leading to the works. The net additional cost due to such changes is included in the estimate.

Activated Sludge Works

Project 2. Activated Sludge Works with Provisions for Dewatering and Drying Sludge to Convert it Into Commercial Fertilizer.—This project provides for coarse screens, pumping station and grit chambers, as in the case of Project 1. The pumping station, however, is contiguous to and in fact, a part of the power station.

In this project the sewage is lifted about 33 feet, as compared with 57 feet in the case of Project 1.

The fine screens are of the mechanically operated type of which there are a number on the market. The estimates have been made large enough to provide for an adequate number of screens of suitable construction, together with necessary equipment for cleaning the screens and handling the moist screenings. For the purposes of this estimate, the aeration tanks are assumed to be 15 feet deep and to have a capacity 20 per cent in excess of that required to provide for a six hour detention period based upon the average rate of sewage flow; this excess capacity is provided for the return of sludge in the amount of 20 per cent of average rate of sewage flow. The quantity of air to be introduced into the sewage during the period of aeration is assumed to be at the rate of 1.25 cubic feet per gallon of sewage, although it is recognized that a smaller quantity may suffice for so dilute a sewage. The method of distribution and diffusion of air through the sewage by means of filtros plates is to be similar to that of the Calumet and the DesPlaines River Sewage Treatment Works of the Sanitary District now nearing completion, and at Milwaukee, and to that which has been in successful use at Houston, Texas, for several years.

The sedimentation tanks are 15 feet deep, and have an area sufficient to provide 1 square foot of tank surface for each 1,600 gallons of sewage per 24 hours at the maximum rate of flow, no additional allowance being made for the volume of sludge which is removed from the bottom of the tank by means of suitable mechanical or other equipment.

The project provides for a sufficient number of filter presses for dewatering the sludge, based upon the results of investigations which have been carried out at Milwaukee during the last few years. It is expected that, if filter presses are used, it will be necessary first to treat the sludge with sulphuric acid, in order that it may be in the most favorable condition for pressing. While the estimates are based upon the use of filter presses, it is recognized that some other type of machine may ultimately prove more suitable for this work. It is believed, however, that the estimates are sufficient to cover the cost of such equipment. The sludge drying equipment includes rotary dryers and auxiliary machinery for conveying, grinding, sieving and bagging the sludge ready for the fertilizer market.

As the gases from the dryers may at times be somewhat offensive, provision has been made for removing dust from them and thoroughly washing them, in order to remove any offensive matter before their escape into the atmosphere. Experiments made at Milwaukee indicate that the gases may in this manner be rendered unobjectionable.

This project provides for a central steam power plant to produce power for driving the pumps for pumping the sewage and sludge, and for operating the air blowers and all other machinery required. The estimates are based upon the use of electric motor-driven centrifugal pumps, steam turbine driven blowers and steam turbine driven generators for furnishing current for electric motors for the miscellaneous needs about the works. The equipment is of ample capacity and includes a sufficient number of spare units.

It is estimated that about one thousand pounds of dried sludge can be reduced from each million gallons of sewage to be treated at the North Side Treatment Works, or about 85 tons per twenty-four hours in 1930.

The estimate of annual charges covers the cost of converting the sludge into condition for sale as fertilizer but does not allow for any credit from such sale.

Sludge Lagoons

Project 3—Activated Sludge Works with Sludge Lagoons. This project is like Project 2 except that the equipment provided for dewatering and drying the sludge is omitted, and in its place provision is made for disposal of the sludge in lagoons.

Project 3 includes a force main from the treatment works to land now owned by the Sanitary District between the DesPlaines River and the

main drainage channel west of the City of Chicago. This force main is of cast iron pipe and about 18 miles in length. The sludge, as drawn from the sedimentation tanks, is pumped through this force main at a comparatively high velocity and discharged into lagoons of moderate size, from which the surplus clear water is drawn off into the main drainage channel. The remaining wet sludge gradually loses its moisture through evaporation and becomes compacted. By subdividing the area utilized for this purpose, it is practicable to fill the lagoons in rotation, applying successive portions of sludge until the lagoons become filled with solids.

The Sanitary District now owns a sufficient area of land, of comparatively little value, to provide for the disposal of sludge in this manner for many years.

Very careful consideration has been given to the question of whether objectionable odors will arise from such sludge lagoons. Repeated observation of somewhat similar lagoons at Houston, Texas, has in all cases indicated that there is an entire absence of offensive odors in the vicinity of such lagoons. We are confident that there is no danger of such odors in the vicinity of the proposed lagoons.

Estimates of Cost

The estimates of cost of construction and the annual charges of these projects are as follows:

Project	Cost of Construction	Total Annual Cost	Cost per Million Gallons Treated
1. Imhoff Tank—Trickling Filter Works...	$16,266,000	$1,766,000	$27.84
2. Activated Sludge Works With Sludge Dewatering and Drying Equipment.....	14,503,000	2,210,000	34.60
3. Activated Sludge Works With Sludge Lagoons	13,203,000	1,751,000	27.42

The estimates of the cost of construction includes 15 per cent for engineering and contingencies, the cost of land already purchased, and the estimated cost of additional land required. The estimates do not include an allowance for interest during construction.

The estimates of annual costs include 5 per cent per annum for interest charges and also 1.783 per cent per annum, as a sinking fund sufficient to retire the investment at the end of 30 years. The estimates also include the cost of repairs and renewals, power, labor, and supplies.

Merits of Projects

Each project is capable of producing the required degree of purification. In each case there will be produced a substantial quantity of sludge containing fertilizing ingredients, principally nitrogenous organic matter.

In the case of Project 1, the quantity of fertilizing ingredients contained in the sludge will be so small that its profitable utilization as a commercial fertilizer is not promising, although there might be some local demand for it in the condition in which it is removed from the drying beds.

The sludge from the activated sludge process contains more nitrogenous organic matter, and is in better physical condition for use as a commercial fertilizer, when properly prepared, than that from Imhoff tank-trickling filter works.

As activated sludge has not been placed upon the market as a commercial fertilizer, it is not possible at present to predict what will be the demand for it, or what price it may command.

The dewatering of activated sludge, which has been under investigation for several years, has proved to be a rather difficult process. While it has been demonstrated that this sludge can be dewatered, it is probable that improved methods will be discovered within a moderate length of time which will materially reduce the cost below that now indicated.

It is difficult to construct and operate such large Imhoff tank-trickling filter works so as at all times entirely to prevent the presence of the odor of sewage in its immediate vicinity. Such odors will be more noticeable about a very large works than about small ones. While it is believed that ample provision is made in Project 1 for the isolation of the works, it is recognized that there may be a noticeable odor immediately adjacent to them, and that such odor will be observed by persons using the highways in the immediate vicinity of the works.

Although the development of the little moth fly has proved objectionable in the immediate vicinity of some trickling filters, it is believed that the development of such flies to any substantial extent can be prevented by the means provided.

The disposal of activated sludge by lagooning in a suitable locality as proposed in Project 3 does not appear to involve any danger of objectionable odors, and is much less expensive than its disposal by any other means, unless substantial return can be obtained for it as a fertilizer.

Recommendations Made

Because of the possibility of objectionable conditions in the immediate vicinity of Imhoff tank-trickling filter works, and because an equal degree of purification can be secured at substantially the same cost by another process, we conclude that Imhoff tank-trickling filter works offer no advantage for the treatment of the sewage of the north side area.

In view of the uncertainty of securing a market for the dried sludge, and of the price at which it could be sold, if there should be a market for it, and in view of the probability that improved methods of dewatering the sludge will be found, we conclude that it is not wise for the Sanitary District to undertake to convert the activated sludge into commercial fertilizer at the present time.

In view of the fact that works comprising Project 3 can produce an effluent equal in quality to either of the others; that such works can be built and operated for considerably less cost than those of Project 2; and that the sludge can be finally disposed of in an economical and unobjectionable manner, we recommend the installation of the activated sludge process with disposal of liquid sludge upon waste land, as herein described under Project 3, as the best system for the treatment of the sewage from the north side area.

The installation of Project 3 will place the Sanitary District in a position to take advantage of any improvements which may be made in the process of dewatering and drying sludge, so that if and when it shall be proved that the sludge can be sold for an amount equal to or greater than the cost of dewatering, drying and marketing the fertilizer, the necessary equipment for so doing may be provided. The Sanitary District is about to put in operation the activated sludge process at the Des Plaines River and Calumet Sewage Treatment Works where equipment has been provided for dewatering and drying the sludge, and it is quite probable that within a short period the Sanitary District will be able to determine how this work can be suitably done.

The area selected for the sludge lagoons is unusually favorable for such a purpose. The Sanitary District now owns a large area of land suitable for this purpose. The land is of comparatively low value, and is well isolated. It is properly protected from overflow by the easterly dike of the Des Plaines River, and is at such an elevation that the clear supernatant water from the sludge lagoons can be drawn by gravity, or pumped with only a slight lift, to the main drainage channel.

This locality is suitable for a de-

watering and drying plant and it may well be that such a plant could serve several sewage treatment works should these ultimately be provided for the treatment of the sewage of the Sanitary District.

In closing, the opinion is reiterated that the activated sludge process recommended for the north side area is readily capable of producing an effluent entirely suitable for discharge into the north shore channel and will conform to the requirements of the Act of 1921 of the legislature of the State of Illinois requiring the treatment of sewage by the Sanitary District of Chicago.

This report seems particularly noteworthy for two things, (1) the abandonment of the hope of securing financial return from the manufacture of commercial fertilizer from activated sludge until better methods of dewatering such sludge are devised; and (2) the attention given to the problem of controlling local nuisances. It is primarily the freedom of the activated sludge process from the danger of creating such nuisances which has led to its adoption, a consideration that recommends the process.

Sub-Committee on Plumbing

THE attempt to simplify plumbing regulation is included in the general work of standardizing building regulations that was started last year by Secretary Hoover as a part of the effort of the Department of Commerce to decrease the cost of living. The first tentative report of the sub-committee on plumbing of the Department of Commerce Building Code Committee has been given a limited circulation among technical and industrial organizations, architects, health officers, plumbers, and plumbing inspectors, and others who have shown special interest in the subject.

This sub-committee, under the chairmanship of Prof. George C. Whipple of Harvard University, is also at work on a code of standard plumbing rules that will be issued as a supplement to their final report. The tentative report recently issued, after dealing with the extent of plumbing equipment subject to control, the reasons for public control, and of the legal principles involved, describes the lack of uniformity in present plumbing code requirements and their methods of administration. Standardization of plumbing materials is a much desired advance but under the varied requirements of different states and municipalities it is obviously impossible. If the committee succeeds in the formulation a model code that the states will be willing to adopt the greatest obstacle in the way of simplification of fixtures and the consequent lowering of cost will have been removed.

The experimental investigations of the committee are being carried on at the Bureau of Standards and were at the time the first report was issued limited to house drainage systems applicable to one-story, one-family, and to two-story, two-family dwellings. In accordance with the request of the committee, the exceedingly interesting and valuable findings in regard to design of fixtures, size of pipes, rate and duration of flow, and related facts is given but this brief mention.

Among the most interesting conclusions that the committee have reached are that a soil stack three inches in diameter is sufficient to give adequate service in an ordinary two-story dwelling; that a house trap or running trap is under most conditions not only unnecessary but undesirable; that a certain amount of venting is usually necessary to make traps safe against back pressure, self-siphonage and siphonage by aspiration; but that an individual vent for each trap is not necessary and that group venting is satisfactory under certain conditions specified in the report.

This proposed attack on the useless if not harmful running trap in the house drain is an excellent step in the right direction. Many authorities would like to see the entire abolition of the costly procedure of back-venting traps, but from its experimental work the committee still feels that group-venting must be continued in most installations.

The final report of this committee promises to be an epoch-making event in the economics of health and housing of the people. The cost of plumbing installations has been, and still is a large item in the total cost of house construction. The simplification of plumbing with lowered cost will extend its use thereby safeguarding the health of the people; better housing will follow and it will be a little easier for the working man to own his own home.

Secretary Hoover, the members of the committee, and the officials of the Bureau of Standards that have made the experimental work possible deserve thanks for what has already been accomplished and the cooperation of all who are able to give help in the solution of the worthwhile task that they have undertaken.

Health Commissioner Wins Seat in Senate

Royal S. Copeland, the first New York doctor to win a seat in the Senate, owes his success principally to his activities as health commissioner of New York. It is safe to say that almost up to the very moment he was nominated last summer the thought of serving the Empire state in the upper house of Congress never had entered his mind. It was the great surprise of his career states the *Times*, when the news came to him that he had been selected as the senatorial candidate. The next surprise probably was the return which showed that he had defeated Senator Calder, veteran Republican politician, by a landslide vote of more than 200,000. Dr. Copeland will be one of two physicians in the Senate. The other is Senator Ball of Delaware. Senator France of Maryland also is a physician, but his name will not be on the roll-call.

Dr. Copeland is a native of Michigan, and once upon a time, long before he decided to go to New York, was mayor of the university city of Ann Arbor. He is a graduate of the University of Michigan, and in preparing himself for a medical career took postgraduate courses in France, Germany, Belgium, and Switzerland. Twenty-two years ago he went to New York to accept the directorship of Flower Hospital, and he was still the head of that institution when offered the post of health commissioner by Mayor Hylan. In his campaign the doctor surprised his friends by the vigor of the fight he put up. He proved that he knew a lot about other things than medicine, among them the tariff, the high cost of living and subjects which might be properly classed under the head of "humanities.

To raise the health standard of the children in his rural district to that of city children is the aim of Superintendent Arthur B. Lord of Topsfield, Mass. During the past year a school nurse has been employed and every child in the town given a physical examination by the school physician and nurse. Formal physical exercises were also introduced into the school.

Health Building Through Nutrition Work

The New York Tuberculosis Association Builds for the Future

By M. ALICE ASSERSEN, M.D., Secretary, Children's Service, New York Tuberculosis Association, New York City

IN RECENT years we have been startled by the fact that from twenty to twenty-five per cent of the children of the present generation are suffering from malnutrition—a serious condition which, on account of its accompanying lowered resistance, exposes them to the risk of acute and chronic disease, especially tuberculosis. With the knowledge that a large majority of children already harbor tuberculous infection before they reach adolescence, we are faced by the problem of overcoming this serious defect—malnutrition—which is so frequently a forerunner, if not actually a symptom, of tuberculosis.

Malnutrition Defined

Malnutrition is a condition of undernourishment—a symptom, frequently, of disease as well as a condition arising from insufficient or improper diet. It may be a symptom of chronic disease, or the result of acute illness. Often it is caused by physical defects or faulty methods of living. It is due generally to a combination of several factors which makes it a complex problem requiring for its correction thorough medical and social work.

There are certain characteristics which we find in a large majority of instances, and these are more likely to be present in children whose weight is ten or fifteen per cent or more below the standard weight. These are: pallor of face and mucous membranes; dull eyes, with dark circles under them; muscles so flabby and poor in tone that they are unable to support the body in an erect position, leaving the shoulders stooped or rounded. The chest is flat and narrow, the abdomen prominent and the back curved in at the waist line.

We find two distinct types among these malnourished children: one, dull and apathetic, listless, tired; the other, overactive, nervous and irritable, capricious, and difficult to manage. Children showing these characteristics are found among the rich as well as among the poor.

Causes of Malnutrition

Some cases are due to poor inheritance and prematurity, which may exert a baneful influence throughout the life of the individual. Acute disease, especially if severe and prolonged, such as measles, whooping cough, pneumonia, etc., naturally may result in malnutrition. Chronic conditions such as heart disease, syphilis, renal disorders, frequent gastro-enteric disturbances are often accompanied by this condition; but tuberculosis, of all chronic diseases, is reckoned to be one of the most frequent causes of malnutrition.

Some of the physical defects causing malnutrition are carious teeth, bad posture, obstructed nasal breathing (especially when due to the presence of adenoids), and diseased tonsils.

Dr. A. K. Krause of Johns Hopkins University, has recently emphasized the great importance of a clean, healthy mouth in the prevention of tuberculosis.

If the lymphatic glands which drain the mouth are weakened by a constant fight to eliminate bacteria and pus from bad teeth and diseased tonsils, the resistance to the specific tubercle bacillus is diminished, and it may become impossible for the gland to exert its usual protective power by destroying, or enclosing these organisms within the protecting barriers of connective tissue, so as to make them harmless for the person infected. The important thing, therefore, from the viewpoint of tuberculosis, as well as from that of the correction and prevention of malnutrition, is to avoid and to remedy conditions such as unhealthy mouths, which interfere with the normal protective function of the lymphatic glands.

Nutrition class at health exhibit of the New York Tuberculosis Association under physician's instruction on proper foods and health habits.

Improper Diet

Among the other causes of malnutrition, besides disease and physical defects, are insufficient food, which may be due to poverty, or to the habit of eating too little; or to badly prepared food because of ignorance in cooking, or to indulgence in rich, indigestible food such as pastry, candies and rich cakes, or to improper food not suitable to the needs of a growing child, like tea and coffee, instead of milk. Children need nourishment, not only for the maintenance of life and the repair of tissue waste, and to furnish heat, strength and energy, but—what is more important still for the growing child—food that will build new tissue and assure his

These lads are all fit subjects for the corrective methods of nutritional class management. Combined with a history of exposure, they are potentially tuberculous

proper and full development. He must have animal proteins for this purpose, such as are contained in meat, eggs, and milk. He must also have a proper amount of lime, phosphorus, iron, and vitamins.

Faulty food habits such as eating between meals, eating irregularly and hurriedly, gulping food and washing it down with liquids, all have a direct bearing in contributing toward malnutrition in children.

Insufficient rest and sleep, or too strenuous exercise, or entertainment of too exciting a nature, are frequent causes of malnutrition in children. An early bed hour, and rest for an hour at least during the day, are important habits to establish in a child's daily routine.

Sleeping with closed windows at night, or remaining too much indoors during the day, may also bring about a malnourished state.

Constipation, by reacting upon the general health, may be responsible for the existing malnutrition.

The important underlying social factors causing malnutrition may be poverty, resulting in bad housing, overcrowding, insufficient and poor quality of food; and ignorance, resulting in unclean and unsanitary conditions in the home, unintelligent buying of food, spoiling it in cooking; and lack of parental control which either neglects or over-indulges a child and allows him to form habits which are detrimental to good health.

The prevention of malnutrition should begin first in the proper care of the expectant mother before the child is born, guarding her against disease and abnormal conditions, incident to her pregnancy, advising her as to proper food both for herself and for the nourishment of the baby. After the birth of the chlid, the prevention of malnutrition lies in the maintenance of a sound body, the provision of clean, wholesome surroundings, sufficient and proper food, and the formation of habits that are conducive to health, as well as the early correction of physical defects.

In the treatment of malnutrition, excellent results have been obtained by the combination of the individual and class method, which utilizes the spirit of the social and competitive instincts and thus stimulates not only children but parents as well.

Nutrition classes can be organized wherever groups of children may be assembled. A physician should be available for the class, or arrangements should be made whereby members may be referred to neighboring clinics for medical examination, supervision and correction of defects; secondly, there should be a special social or nutrition worker provided.

The size of the class should be limited to twenty or twenty-five children, as experience has taught that better results can be obtained by working with small groups, where necessary individual attention need not be sacrificed.

The success of the class will depend upon the selection of competent workers, who must be experienced in practical social service work, know something of food buying and food values, and have a love for children as well as an intelligent knowledge of handling them individually, or in orderly groups.

The first step in organizing a nutrition class is the selection of the children for whom this work is needed. In order to do this, the nurse or nutrition worker must ascertain the weight, height, age, and social history of the children.

Children under six years of age should be weighed without clothing, and the older ones with only indoor clothing and without shoes. Those who are 10 per cent or more below the standard weight are usually the ones first considered for membership. The standard weight tables prepared by Dr. T. D. Wood for the Child Health Organization will be found very useful.

The children selected in this way should then be invited to meet once a week. At the first session they should all be submitted to a careful medical examination, not only for the purpose of discovering the possible causes of the undernourished condition, but also to ascertain whether it may be due to disease, or to physical defects, and to determine and classify the grade of malnutrition; for although the standard weight tables prepared are an invaluable aid in selecting cases of malnutrition they are nevertheless a single index only. It is necessary in judging malnutrition to consider other elements such as the general "make up" of the child, the proportion of fat and muscle, whether his bones are small and comparatively light, or large and heavy. The racial and family characteristics must also be considered so as to determine whether he belongs to those of large or of small physique.

A record of the physical examination, habits of the child, and, so far as is possible, the social condition of the family should be entered upon the record sheets prepared for this purpose.

It will be found helpful to give to each child, at the close of the first session, a little blank book to be used as a "diary" throughout the week—the hour of rising and going to bed each day, the time of each meal and the food taken, whether or not eating between meals was indulged in, the amount of time spent out-of-doors, etc., to be noted. Many of the older children find it interesting to estimate the number of calories in the food taken each day.

WEIGHT TABLE for BOYS

Weights and measures should be taken without shoes and in only the usual indoor clothes.

Height Inches	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs
39	35	36	37								
40	37	38	39								
41	39	40	41								
42	41	42	43	44							
43	43	44	45	46							
44	45	46	46	47							
45	47	47	48	48	49						
46	48	49	50	50	51						
47		51	52	52	53	54					
48		53	54	55	55	56	57				
49		55	56	57	58	58	59				
50			58	59	60	60	61	62			
51			60	61	62	63	64	65			
52			62	63	64	65	67	68			
53				66	67	68	69	70	71		
54				69	70	71	72	73	74		
55					73	74	75	76	77	78	
56					77	78	79	80	81	82	
57						81	82	83	84	85	86
58						84	85	86	87	88	90
59						87	88	89	90	92	94
60						91	92	93	94	97	99
61							95	97	99	102	104
62							100	102	104	106	109
63							105	107	109	111	114
64								113	115	117	118
65									120	122	123
66									125	126	127
67									130	131	132
68									134	135	136

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Parents should be urged to accompany their children to the class sessions, as it is important for them to understand the condition of the child, so that they may be willing and better able to cooperate with the physician and nutrition worker.

After the preliminary work of selecting and examining the children is over, the next step is a visit to their homes by the nutrition worker to learn something of the conditions under which they are living, and to advise the parents as to personal and home hygiene, with special reference to the formation of good habits concerning rest, exercise, fresh air and proper food, and to emphasize the advice given by the physician as well as to assist, if necessary, in securing the correction of physical defects.

A weekly session of the class should be held, the children being weighed each week and the weight entered upon the individual charts. The height need be taken only every three or four months.

The charts should be hung, during the class sessions, in the order of weight gains, so as to bring attention to the good results.

Individual attention should then be given to each child, especially to those who may have lost weight, by obtaining from both child and parent an accurate history of the week's events. When this has been accomplished, an interesting and instructive talk on some health topic should be given, either by the physician or by nutrition worker.

There are many methods in use for arousing the interest of the children in their health progress. One way is to award stars of different colors for gains in weight, cleanliness of teeth, daily rest, drinking of milk and for the correction of defects. Another plan is to establish an Honor Roll, or to allow one-half of the class to compete against the other half. The individual weight chart alone is often stimulating, as interest is aroused in trying to reach the goal, the red line drawn across the chart indicating the normal weight.

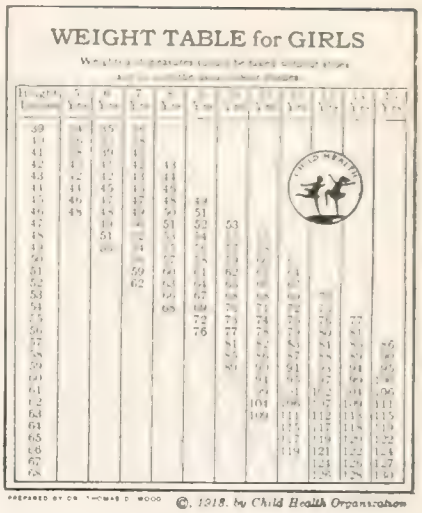
These methods are not only stimulating to the children but to the parents as well, who are invited and urged to be present at each class session; for without the interest and cooperation of those in charge of the home, and of the child, little can be accomplished.

After the first thorough examination, the children should be re-examined at the discretion of the physician in charge, but always before graduation.

The weekly weighing should be conducted in a formal manner so that the child may be impressed with its importance. Graduation from the class should be based upon the amount of gain made—for instance, a child who has attained his normal weight and who has held or exceeded it for two consecutive weeks may be graduated, and should be given honors, provided he has observed the rules of health and has had dental and other physical defects corrected. It should not be forgotten that the value of the nutrition class depends not only upon the actual improvement made by the individual child, but also upon the amount of health education which has been acquired by both child and parent.

Boy, formerly malnourished, but who at the time of graduation from nutrition class had gained nearly thirteen pounds in nineteen weeks.

WEIGHT TABLE for GIRLS



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After graduation the child should be made to feel that he still belongs to the class, and should be invited to return about once a month to be weighed and to participate in the exercises.

Vacancies made in the class by graduation should be filled at once from the waiting list of eligible members.

Class Equipment

Comparatively little equipment is needed to conduct a nutrition class. The essential things are: scales, individual weight and record charts, a table of standard weights for reference, stars—red, blue, gold, and silver—record books for daily happenings, chairs or benches for the class, a desk or table, and a screen and examination table.

It will always be found helpful to have the use of a gas stove or range in order to conduct special cooking demonstrations for mothers, sisters or older girls in the class.

Gains and Variations

Among practical difficulties arising in the conduct of nutrition classes at various periods of the year is that of the normal seasonal variations in weights of either children or adults. The recent report of the New York Nutrition Council gives valuable statistical indications, to guide the worker in charge in understanding the individual weight progress. It has been found, by a study of 977 individual records of children, under the care of the New York Association for Improving the Condition of the Poor,

that the average monthly gains were distributed as follows during the year:

DISTRIBUTION OF MONTHLY GAINS OF GROWING CHILDREN THROUGH THE YEAR.

	Boys	Girls
January	9.9	8.3
February	7.6	6.7
March	6.4	5.6
April	4.7	5.3
May	3.7	4.2
June	6.9	6.5
July	3.9	5.4
August	13.2	12.3
September	15.0	16.5
October	14.8	17.6
November	12.3	15.3
December	7.6	8.4
	100.0%	100.0%

With the gradual elimination of preventable diseases in modern life nutrition work during childhood and adolescence, interpreted in its broadest sense, as a means of awakening the consciousness of the child to his own physical condition and training him in health habits, should prove to be one of the most valuable health movements. The young adult who faces active life with a healthy body will at least be assured an equal opportunity and capacity both for the proper enjoyment of life and for contributing his full share to the progress of the world.

Milk-Borne Diphtheria

Very unusual epidemiological facts were revealed by an outbreak of diphtheria that occurred in Austin, Texas, in the spring of 1922. A few cases of an extraordinarily virulent form were reported in January and February. Soon after the onset of the disease both tonsils were covered with a thin milky-looking membrane that shaded gradually into tissue that appeared normal without any sharp line of demarkation. The mucous membranes were not of the usual vivid red. The membrane, which involved an unusually large area, appeared simultaneously in several parts of the throat and soon developed a dirty black appearance.

Toward the latter part of March the outbreak began to assume serious proportions. Seven cases appeared at about the same time among a group of students at the University of Texas that took their meals at the same boarding house. A month previous to this time a cook at the boarding house had been ill with diphtheria and her baby had died from the same disease. The cook could not be found as she had been discharged at the time of her sickness; the interval between her departure and the first appearance of the disease was too long to fix responsibility on her; the other cases were scattered irregularly throughout the city; and the origin of the epidemic was still unknown.

The university authorities asked aid of the state health department and as the outbreak had been too explosive to be due to ordinary carriers they suggested an investigation of the dairy that was supplying milk to the students' boarding house. The milking at dairy B was done by Mr. S., his wife, and their son. Visual examination of these three as well as four younger children in the family revealed apparently normal throats, and none of them had a recent history of illness or sore throat. Cultures from the entire family revealed *B. diphtheriae* in the throat of Mr. S. The grandchild of the proprietor who lived on the premises about a hundred yards from the dairy was found to be seriously ill with a dark, extensive, necrotic membrane that was typical of this epidemic. She had not been near the dairy nor handled any utensils since she became ill.

The herd consisted of fifty-one graded Jersey cows. A large number of them had cuts and abrasions of the teats and udder due to the barbed wire fences so common in that state. One cow had three teats covered with thick black scabs which when removed left a ragged ulcerating surface. Cultures from these sores were positive. At this stage the investigators believed that Mr. S. was a chronic carrier; that he had infected the cow; and that the grandchild had been infected through the milk. The usual control measures were inaugurated; the infected cow and her milker were quarantined, and the sale of the milk was stopped.

Mr. S. insisted that the infected cow had the sore when he came to work at the dairy early in January and that before that time the herd had been milked by Mr. M., his wife, and child who were now milking for dairy Z. At the time of this disclosure two new cases of diphtheria were reported among the customers of dairy Z. Nose and throat cultures were taken of the milkers at dairy Z and all proved negative except the culture of M.'s nose. Further examination revealed a perforating ulcer of the septum. This ulcer which had existed for four years had been diagnosed syphilitic, and several treatments administered. Repeated cultures from this source gave extremely virulent *B. diphtheriae*.

The final conclusions of Graham and Golaz, of the Texas State Department of Health, who report this unusual epidemic in the *Journal of the A.M.A.*, October 14, 1922, are that Mr. M. infected the cow at dairy B while milking there previous to January 1. The cow was dry at that time and was not milked till February 1, shortly after which date diphtheria appeared among the dairy customers; the cow infected Mr. S. and the grandchild of the proprietor and the majority of the cases in the city were infected from the milk. The investigators state that it is puzzling to explain the explosion of new cases late in March.

In this atypical epidemic of 71 cases, 80 per cent were among adults and 52 of the cases were traced to infected milk. This experience shows the need of careful inspection of dairy animals in all milk-borne epidemics and the value of nose cultures.

Drug Adulteration Shows Large Decrease

Drug adulteration is on the wane according to experiments of the Connecticut Agricultural Station at New Haven which reports that out of nearly four hundred specimens of United States Pharmacopoeia drugs examined only sixty-two were found adulterated, below standard or otherwise illegal. Most frequently, derelictions were found in the case of bay rum, essence of peppermint and similar products, which have no great significance in therapy. Even solution of calcium hydroxid, which so often has left the druggist's shelf as moderately pure water, having parted company with its content of lime during a prolonged sojourn there, is found to be up to standard with reasonable frequency.

Only a few years ago there were extremely few "honest" diabetic foods. Today the number of reputable products with truthful claims is largely increased. Yet Bailey's report shows the sale of a "starchless breakfast food" containing more than 64 per cent of starch, not to mention the additional sugar content. There are "glutenized" cereal products containing 50 per cent of starch and soluble sugars, yet recommended for diabetic patients. Gluten products containing more than 65 per cent of available carbohydrates, and therefore no more suitable than ordinary wheat bread for the diabetic, are advertised still; but they have lost their former prominence in the face of an educated medical profession and a cautioned purchasing public.

Public and Private Health Agency Relationships

By ROYAL S. COPELAND, M.D., Commissioner of Health, New York City.

THE duty of protecting the public health is the particular business of governmental or official health agencies. When the exercise of this function is defective or neglected, the members of the community, individually or collectively, have a legal right and a moral obligation to ascertain the causes of such defect or neglect, and to attempt to correct conditions.

In the last analysis, the responsibility for the character of the health protection rendered a community rests not only with the officials who are charged with such duties, but with the citizens of that community as well. Just how far public service should extend is open to debate. There can be no doubt that it is the duty of official agencies not only to exercise police authority for the protection of the public welfare in general, but to establish and conduct medical and educational services which the poor require and which are not otherwise provided.

When a catastrophe or serious epidemic occurs, distinctions and differences as to the rights and prerogatives of official as against voluntary agencies naturally disappear for the time being. An imperative work has to be done. If the official agencies have been far sighted and have prepared themselves to cope with such emergencies, they are logically in exclusive command of the situation. If not, any voluntary agency having the means and ability to render aid is justified, in stepping in to fill the breach. Aside from such grave emergencies, however, private individuals or organized groups, it seems to me, should not assume the exercise of functions which are properly the business of official health bodies. Since official agencies are responsible for the failure or success of their health protective measures, they must have undivided authority and full jurisdiction in the performance of such work.

It would be both unfair and unwise to hold official health organizations responsible for the proper discharge of their duties and obligations to the community, unless with such responsibility there went unhampered and undivided authority to direct and conduct such work. When authority is divided, the blame for failure cannot be properly placed. Moreover, a public agency which is expected to perform a responsible and important piece of work calling for the exercise of administrative functions, is handicapped rather than aided by unnecessary competition of private agencies in the conduct of its activities.

In the interest of good citizenship, it is desirable and necessary that groups of citizens in every community should organize to serve as vigilance committees, exercising influence to compel official bodies that may be lax or incompetent, to render effective service. This is the paramount service private agencies have to perform.

Any agency that assumes to conduct community health service which should properly be performed by an official health body, is guilty—though it may not be conscious of it—of an unsocial act, unless incompetence, indifference or poverty of a community government make it imperative for citizens to take up arms for their own protection. If officials will not or cannot perform functions which are properly theirs, it is not the business of private groups to supplant them, but to bend their efforts to the instruction or reform of such officials, or to the procurement of moral and financial support to establish or strengthen the health organization of such official bodies. Private groups which seek to serve as substitutes for official agencies, do little except to produce demoralization and to delay the establishment of good and efficient government.

Should Be Supplementary

Private organizations interested in public health activities should be the closest allies and warmest supporters of official health bodies. Unfortunately, this natural relationship is frequently conspicuous by its absence. Volunteer organizations, having their origin in a desire to create and support necessary official health machinery and activities, sometimes have a way of perpetuating themselves long after the conditions that justified their birth and existence have ceased. Following the recent war this was illustrated in a number of communities.

Public service should not be regarded as a medium for earning individual glory. There is no occasion to be exercised over credit denied a given individual or unjustly ascribed to another. Virtue should be its own reward; but, it is, of course, quite human and reasonable for those who, like Hotspur, are be-grimed and sweated with the toil of battle, to resent the criticism of non-combatants, or the decoration of those who have not borne the brunt of the day's labor. Moreover, in a discussion of inter-relationships of public and private agencies one must take stock of the lesser things which conspire to mar harmonious relations between public and private health agencies if these minor complaints are not to continue to cause friction. A frank diagnosis of the causes of ill will must precede efforts at correction.

Public health officials, whose duty it is to furnish information with reference to their activities to individuals or groups in the community, are, in their turn, disturbed when such information is secured by workers in private health agencies and utilized without acknowledgement or credit. Private health agencies, especially those desiring campaign material to obtain financial contributions from generous citizens, cannot be excused if they publish accounts of health activities in which either directly or by implication they may seem to claim credit for results which are due to the activity of the public health officials. The official agency needs to receive credit, not for the gratification of the vanity of those in charge, but to justify their course of health supervision so that they may be assured of further support for activities having to do with the public welfare. It is absurd for any private health agency, in making bids for contributions, to claim credit for a falling death or sickness rate, when even a judge with the wisdom of Solomon could not determine all the causes for such a decreasing rate. It is exactly as if a historian writing of the activities of foreign and remote events which have come to his knowledge through documents were to write as if he were the chief actor in the activities or events which he describes.

It is safe to say that no voluntary health agency is properly organized if it is not striving for its own effacement. Nor is this the harsh and hostile dictum it seems. It is obvious, that if an agency has set itself the objective of awakening in the community a public sentiment of the need for efficient and adequate machinery for

health protection, such agency should not divert its efforts toward obtaining financial support of an independent organization for the purpose of conducting the health work which they claim a desire to promote. The voluntary agency should not replace or supplant the official health body. In direct proportion as voluntary measures are successful in stimulating health officials to the performance of their duty, or in creating public understanding and sympathy and in helping to secure adequate funds for the conduct of public health work, they will have lessened the need and excuse for the continued existence of parallel bodies and should prepare to retire from the field. This, of course, does not apply to groups that act merely as vigilance committees to maintain standards of municipal or governmental efficiency, free from political motive or self-interest.

It is alleged that a few voluntary agencies that have grown greatly in social and financial power have not stopped short even of attempting to impose their judgment and decisions as to objectives, methods of procedure, and the conduct of health services upon official health agencies. This has resulted quite naturally in bitterness and in conflicts.

A Parallel Case

An analogy may serve to show the fallacy of the present methods of such private health agencies. Let us assume that in a community whose police department renders inefficient or insufficient service, a private association has undertaken to remedy the situation by organizing and maintaining a private police service for the community as a whole. Obviously, this would be a most demoralizing, undemocratic, and subversive form of private service. Good citizenship requires that the best elements should unite for the creating of a public sentiment that would compel the correction of the defects or evils that may characterize an inefficient governmental police department; or such public sentiment should aim to secure adequate financial support to make the existing police department efficient. A private police service would inevitably cause duplication of work. The resulting confusion and conflict, would cause a delay in the correction of the evils or deficiencies in the public service, that would aggravate and intrench such evils or defects. Moreover, lacking the authority to assume the police power, it would weaken the authority and dignity of the governmental agency.

The community would not suffer from the termination of some of the private agencies that concentrate their efforts upon the special activities designed to stimulate a flow of public contributions to their own organizations. The contrary would be the case, for sound civic policy dictates the preservation and enhancement of official governmental agencies. Private health organizations could with great benefit to all devote their enthusiasm and energy to the support of the official bodies. Financial support by the public of philanthropic institutions is necessary and commendable; but the financial support of private health agencies is of very questionable value, since it inevitably tends to convert such agencies into groups that are zealous to compete in the exercise of functions which sound civic policy and the general welfare demand should be performed by the official health organization.

The volunteer or private health agencies are of service primarily in small communities, or in areas where official health activities are very primitive and undeveloped, or where the official agency is very deficient in the quality of its service. In the larger communities, especially in the chief cities of the country, in most instances volunteer agencies have no right to exist unless they mean to serve as vigilance committees or research bodies.

Recapitulation

(1) There is the need of private health agencies to serve as vigilance committees. The phrase "vigilance committee" is perhaps inappropriate in that it implies an attitude of hostility on the part of citizen groups, as the need is for groups of public-spirited citizens, well organized, who are united to support and encourage general progress in public health work, who are content to serve as friends and allies of the official health bodies, and who will throw the weight of their social influence in favor of securing more adequate support for such official health agencies.

(2) Such voluntary associations may give valuable aid in conducting experimental or research health activities in order to determine the value of some new method of procedure which the local or state government may later be asked to adopt.

(3) They may legitimately supplement the work of official health agencies by financing and maintaining social service activities for which funds or personnel are not available.

In conclusion, I would say that there is sufficient opportunity for service by private health agencies in the fields which I have just described. If they will accept this limitation, there is glory enough to go around and, what is more important, the public service and welfare will be greatly benefited.

Increased Mortality Affects Advanced Ages Chiefly

The higher mortality rates which have prevailed during the first six months of this year have affected chiefly the ages beyond 45 years, according to the Statistical *Bulletin* of the Metropolitan Life Insurance Company. At ages under 25 years, the deathrate declined sharply. The decline in the deathrate for children under 15 years resulted from the lower diphtheria, scarlet fever and whooping cough rates; among adolescents the lower tuberculosis mortality was the chief factor back of the lower rates. The deathrate was approximately five per cent higher this year in the age group 25 to 34 years. This increase resulted, from the most part, from the higher rates for influenza-pneumonia and organic heart disease. In the age period 35 to 44 years, the rate for all causes of death this year was only 4.3 per cent in excess of the figure for 1921, and the increase seems to have been caused by higher deathrates for influenza-pneumonia and cancer.

The more significant increases in the 1922 mortality record have occurred, however, at the more advanced ages. For the age division 45 to 64 years, the deathrate for the first six months of 1922 was 12.3 per cent and, at the age group 65 years and over, 13.3 per cent in excess of the figures prevailing during the same period of 1921. The chief factors responsible for higher mortality at these advanced age divisions were organic diseases of the heart with an increase of 21.6 per cent between 45 and 64 years and of 20.1 per cent at ages 65 and over. There was a considerable increase in mortality also for chronic nephritis, cerebral hemorrhage and apoplexy, cancer and influenza-pneumonia.

According to Dr. Wood in the *Journal of Education*, 15,000,000 of the 24,000,000 school children in the United States suffer from remedial health defects, malnutrition being the most common with visual defects second.

The Problem of Obtaining a Good Milk Supply*

PURE food propaganda is so far effective in the United States that, other things being equal, the products "made in daylight factories," and packages "not touched with hands" find the readier sale, and at what may often be considered a disproportionate advance in costs in the open market. In the case of milk, however, a relatively greater cost in preparing and handling for the market is both scientifically and humanely necessary for the promotion and maintenance of the highest degree of physical health, for the universal use of milk as a health measure presupposes that the supply shall be safe.

Milk products must not only be pure, but they must uniformly present standard food values and must be delivered daily on every doorstep. Every handler must accord it the precise care as to cleanliness and temperature regulation necessary to prevent the deterioration of a highly perishable product. Safe practice in regard to such a commodity of necessity imposes sanitary methods. Standardization, which safeguards the consumers in placing a minimum limit on the butter fat content of milk, also suggests to the farmer the necessity for a careful weeding out of ineligibles from his herds, replacing them with animals whose products in quantity and quality will enable him to meet the economic problem involved in providing milk in such quantities and at such prices as will make it available to all the people all the time.

Who is responsible for the evolution of the dairy industry? More especially, who is responsible for its ethics? For ethics it is that imposes such complex regulation and enforces its continuous observance.

Health officials, bearing in mind their onus of sampling and inspection, and of policing in times of milk-borne epidemics, claim full credit for the reforms that have taken place in the milk business in the last decade. The dairy interests, however, point with pride to their trade organizations, national and international, formed for express purposes of research and for the development of laboratory tests and sanitary methods as a basis for the rating of cooperating members. Nor are their organizations lacking in the machinery to keep in line recalcitrant members who fail to conform to these self-imposed standards.

Twenty years ago the dairy farmer peddled his own wares. If here and there a dairyman by habit more careful than the rest provided a relatively safe product, he was the exception rather than the rule. There were no clean dairies in the present meaning of the term. No tests of herds were made, no certification as to fat content, no feeding tests as to vitamin principles. Sanitary standards as to handling were unheard of. Sales of milk were made as widely as the farmer's output would permit and no cooperative effort was made to meet the demands of an exacting market. If perchance the course of typhoid or diphtheria coincided with the route of a careless milkman, it passed unnoted, and the "hand of God" was seen in the affliction.

In view of the conditions, it is perhaps just as well that reform came both from within and without. The health authorities had occasion enough for their activities in cleaning up the milk situation. Opposition on the part of milk producers to the increasingly exacting demands of health departments has gradually fallen off until at the present time it would be a bold, bad dairyman indeed who would propose to return to the older methods, and such a course would spell his ruin. All over the country a marked tendency is shown among dairy farmers to cooperate with distributors in each progressive movement.

Naturally, the process of achieving this unity of practice has not been carried on without some opposition, and unreason has from time to time characterized both the health department and the industry. Even now in some sections the protagonists of tuberculosis-free herds advocate drastic methods that would needlessly reduce the milk supply, are economically unsound, and are probably not called for by the situation. B. tuberculosis is not the only pathogen which constitutes a menace in milk. The reasonable safe-guarding of herds and pasteurization are the solution. Nor is a low bacterial count the only criterion of safe milk. Economic hazards likewise attach to some minimum fat requirements that are advocated. The fat content of milk varies with the breed of cattle, with the method of feeding, and with the season. Inflexible requirements and an inordinately high fat content do not allow for this variability and would involve standardized herds and wholesale replacement of present dairy cattle. In the light of newer investigation on nutritional lines it may well be that the

Glass-lined pasteurizing vats, each holding [illegible]. Now they are used exclusively for milk, the great American beverage.

*The pictures presented with this article are from the plant of the Gridley Dairy Company, Milwaukee, Wis.

Cooling room, where the temperature of the pasteurized milk is immediately lowered to around 38 degrees. The mosaic tile ceiling and walls, and concrete floors throughout the building are steam-cleaned and made sterile.

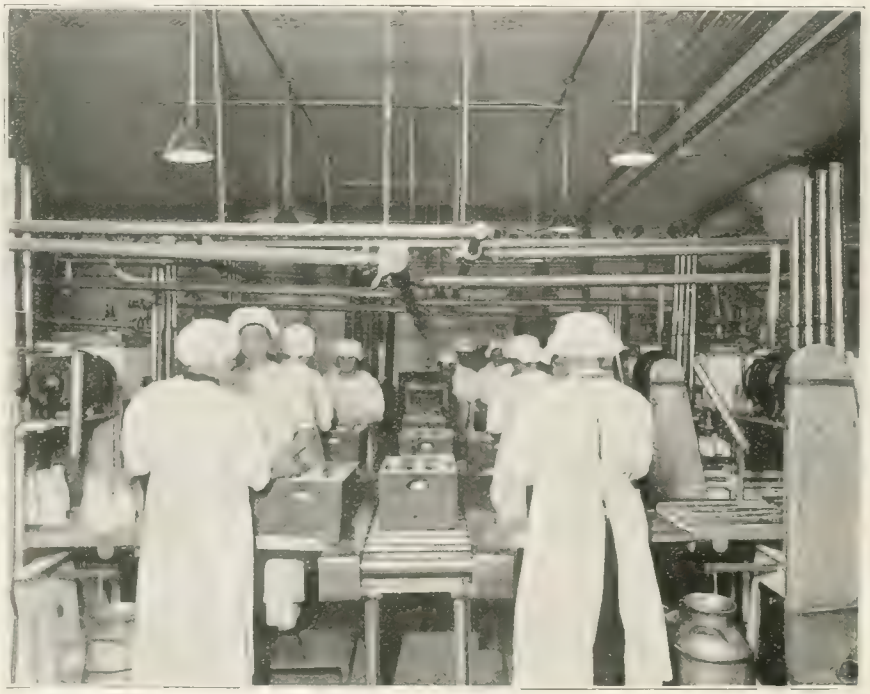
calcium and vitamin values rather than fats will determine gradations in milk, and that biological experiment will replace present methods of test tube trial.

What the ultimate values are will be scientifically determined. The dairy interests themselves are indefatigable in research both as to food values and as to the basic economics involved. The World's Dairy Congress set for 1923 is a scientific assembly, convened primarily to determine precisely what the standards should be, and how it can be made economically possible to make right practice universal in the dairy industry.

Milk production and distribution are of no inconsiderable importance. The expense for production and distribution has wide economic bearings. The most extensive study bearing upon the cost of handling proportionated to the ultimate cost of milk on the market was made by Mr. Hoover's special milk committee of which Dr. Clyde L. King, of Wharton's School of Finance, Philadelphia, was chairman in a detailed study of seven distributors in the cities of Milwaukee, Madison, Racine, Eau Claire, and Kenosha. The combined output of these dairies amounted to twelve million dollars, their products being distributed to more than eighty-nine thousand retail and wholesale customers through nearly four hundred wagon and auto route. practically all their sales being made by drivers either to family or store trade. On a total of 173,000,000 pounds of fluid milk and cream, the handling costs averaged about a cent and one-half per quart, the dealers' profits 3.32 per cent of the total sales.

The "know your school" slogan could well be supplemented by the admonition "visit your milk plant." Investigation may not reveal remediable conditions, but it may be very enlightening as to how an entire factory is operated under laboratory conditions. An up-to-date milk plant of one hundred twenty thousand bottles daily capacity involves a factory floor space of 197,000 square feet, not allowing for country receiving stations. Three chemical laboratories are required, 710 workers employed, and the plant requires 1,400 h.p. boiler capacity and a 100-ton refrigerating plant. The nature of the work requires showers, rest rooms, all day and all night lunch rooms for employees as well as special installations of many kinds. The floors of the plant inspected are all of cement, fully drained; the walls and the ceilings are all of mosaic tile, beautiful to look at and easy to clean. Hot and cold water under high pressure, and live steam available everywhere are a part of the sanitary provision. Specially adapted apparatus and exacting routine procedure take care of the rest. A repair shop constantly employing thirty men, painters, tinsmiths, coppersmiths, etc., runs 365 days in the year, some of the men on duty all the time, Sundays and holidays as well as the usual work days. An electrical and engineering department employs sixteen men, including the chief. A wood-working shop, blacksmith and harness shops, and a veterinarian department are maintained.

The milk is collected in eight gallon cans. It is received at the plant



Bottling room, where twenty thousand bottles per hour are automatically filled and capped. Along the route by which the bottles are carried on a moving belt each bottle is flushed with thirty gallons of hot water under thirty pounds pressure.

by the sampler and his assistants, subjected to the most severe tests, the weight of each can carefully noted, and then the milk dumped into a huge vat from which it is pumped to the top floor. The empty cans, including those owned by the farmers making delivery to the plant, are then treated to a rapid process of washing and sterilizing, every can being flushed by not less than 250 gallons of scalding water forced into its innermost recesses at a pressure of twenty-five pounds. The bottles also receive the same treatment with the exception that each bottle receives thirty gallons of water in the process of sterilization.

From the glass pasteurizing vats on the top floor, the milk is distributed throughout the plant by the gravity system. Pasteurization is carried out by the usual standard of 145 degrees F. for about thirty minutes. The milk is then carried through the cooling room where the temperature is immediately reduced to 38-40 degrees. It is then automatically bottled and capped, and held at constantly low temperature pending delivery.

The law in Wisconsin provides that whole milk—nothing added and nothing taken away—shall be delivered to the trade. The legal requirement that it shall carry a minimum of 3 per cent butter fat is exceeded by the actual tests, which run from 3.5 to 3.8 per cent. Cream under the law may be standardized and the practice is to deliver three grades of cream, 18, 23, and 32 per cent respectively. The fact that milk producers are paid on a basis of the fat content serves to interest the farmers in scientific feeding. Samples are taken every day and tests made at ten day intervals and records are kept of the product. The farmer is notified of any undue amount of sediment. The paper carrying the evidence of dirt accompanies the notice to the farmer to clean up. In the past some few dairies made a selling point of handling clarified milk, a practice which the National Association itself remedied by requiring "clean, not cleaned" milk.

Where dairies prepare and handle such by-products as butter, cheese, and ice cream, the same meticulous care is exercised in these special departments. In the plant inspected a log has been kept of every churning. The record of acidity, salt and moisture percentage makes it possible to check back to any single churning of a total output of three and one-half million pounds of butter a year in order to discover and correct any faulty condition. The several laboratories

One of the laboratories where samples of milk are taken to be analyzed as to fat content, sediment, acidity, and bacterial count.

keep continuous record of the daily analyses for fat content, sediment, and acidity. Samples are taken at random from the cold room. If the Board of Health gets samples, the daily routine of the factory analysis affords parallel tests for comparison.

In the Wisconsin study quoted comparison was made on the basis of "points," one point being the equivalent of a quart of any kind of milk, or one-half pint of cream. Two points comprised the daily average delivery to a customer. The lowest average of customers per route was 164, the highest 242. The average cost of delivery per customer was $14.87 per year. The expense of the dairy plant, exclusive of the cost of milk, was one-tenth of the net sales. The three dealers who maintained the lowest costs were the same ones who set the highest daily averages in points delivered per route. The widest margin of profit also accrued to the dealers who emphasized scientific method. A low cost in handling carries its health correlation in the increased consumption of milk. An understanding of the economic background of better milk production will lessen arbitrary insistence upon non-essential requirements and will serve to hasten the day when good milk will be plentiful and cheap enough for anybody to use. It is an economic problem of magnitude.

The Nurse as an Educator

SOME of the many things which a nurse should know and do in her position as private nurse to make herself a valuable factor in venereal disease control are recounted by Ann Doyle in *The American Journal of Nursing*, September, 1922.

(1) She should be acquainted with the subject of venereal disease, at least sufficiently well to enable her to discuss the condition of patients with physicians without incurring their displeasure. (2) She should know the federal, state, and city provisions for control, in order that she may lend moral support to the physicians in getting cases of venereal diseases reported. (3) She should be familiar with the various agencies and societies interested in social hygiene and the prevention of diseases, in the community in which she lives, in order that she may gain assistance in getting objectionable conditions corrected. (4) She should be careful to consult physicians of the highest professional reputation. (5) If she is morally certain that the patient for whom she is caring is not being properly supervised and public health is endangered thereby, she should seek redress through medical fraternity whenever possible. (6) She should not discuss venereal disease cases in any way which might do damage.

Health Twins at Work

THE animated cartoon with its flavor of humor and frivolity hardly seems a suitable means for conveying a forceful and dignified message but the reception by health workers of "The Public Health Twins at Work" produced by the American Social Hygiene Association proves that the limitations of the possibilities and versatility of the motion picture as an educational instrument have not yet been reached nor defined.

The scene opens on a courtroom where the judge representing Public Opinion presides. Two sprightly clever little men, the public health twins, are introduced respectively as Science and Administration with the explanation that "the control of disease depends upon science and administration." The judge orders the three culprits, tuberculosis, infantile diarrhea, and diphtheria to stand before him and when they have taken their places all else of the scene except the three prisoners fades out and the caricature of tuberculosis slowly dissolves into a vertical bar. In quick succession the other two figures are likewise transformed into vertical bars, the resulting picture being a bar graph of the mortality rates of the three diseases in 1900, each bar being carefully titled and of proper height in relation to the other.

The scene changes to the prison chamber. The public health twins drag the prisoners and hypnotize them into vertical bars. These bars are hammered down by Science and Administration to the condition shown in Figure 10. More serious than any of these diseases, says the title, are gonorrhea and syphilis, commonly called the venereal diseases. The scene is again the prison chamber. Venereal disease is brought in and hypnotized into a bar but so tall is it that it extends beyond the top of the screen and the twins look skyward in amazement. One twin seizes a hammer labelled "Medical Inspection of Prostitutes" and shins up the bar. The other twin remains below looking up but presently dodges to escape being hit by the hammer which has been broken off at the neck of its handle. Another hammer labelled "Publicity" is tried, but though the sparks fly it seems to make little impression on the bar.

The twins are discouraged but finally evolve a plan consisting of many measures which, intelligently combined and supplied, hold out hope of ultimate success. Then a new tool box containing an assortment of hammers representing enlightenment of public opinion, repression of prostitution, control and treatment of those who are infected, supervised recreation, better economic and social conditions, and character training is secured. The twins seize the hammers and rush up to the top of the bar where they begin their rhythmic pounding with obvious success. After a title "And in a few years—why not?" the scene is once more moved down to the bottom of the bar where the twins are still at work pounding the bar closer and closer to extinction.

Titles for the pictures are as follows: 1. The judge, "Public Opinion." 2. One of the twins, Science and Administration. 3. Tuberculosis and Infantile Diarrhea awaiting sentence. 4. Diphtheria grows excited in the court room. 5. The judge pronounces sentence. 6. All but the three prisoners "fade out." 7. The prisoners "dissolve" into bars. 8. In the punishment chamber where tuberculosis is "hypnotized" into a bar. 9. Hammering down the tuberculosis rate. 10. The result of twenty years work. 11. "Venereal diseases" being hypnotized into a bar. 12. Hammering the V. D. bar. 13. The hammer "Medical Inspection of Prostitutes" has been broken. 14. The V. D. bar hammered down.

Health Officers' Opportunity for Research*

Rural Districts Offer as Good Field For Epidemiological Study as Cities

By DR. BURDGE P. MACLEAN, Health Officer, Huntington, N. Y.

THE rural health officer, like the country doctor, too often permits himself to be persuaded that his limited territory necessitates limited opportunity and limited activity. Too often he is led to believe by the people of his district that investigation of so-called nuisance is paramount, and that poking and smelling about dumpheaps, manure piles, and overflowing cesspools should be his end and aim in life. Too often he is dissuaded from honest investigation by that attitude of resentment which is often assumed by uninformed and misinformed individuals, which attitude disappears and is converted into one of cooperation, in the great majority of instances, when the purpose of his investigation is made clear.

By promptness, by vigor of action, and by utilization of the epidemiological and laboratory assistance at his command, the rural health officer has an opportunity for medical, clinical, and epidemiological research denied the central office man and the health man of large communities.

His limited territory is turned to his advantage. A bloodhound is of more service in Green River, than he is on Broadway, New York. He keeps the scent and trees his man. In the big city the tracks are lost. smallness of his district does not imply smallness of the bump of curiosity on the head of the health officer nor lack of opportunity. There is much to be learned and the opportunity of finding the key to many problems may come to the country doctor. Beaumont was a country doctor when he did his great work on the stomach; ovarian surgery got its start when a country doctor, MacDowell, had the courage of his convictions. These facts, therefore, furnish a hope that through preparedness and alertness the knock of opportunity may be heard at the door of the lesser lights and result in a real service to humanity and the realization of legitimate ambitions.

This matter of preparedness needs definition. Emphasis upon the following factors would no doubt lead to more accurate and abundant epidemiological and scientific data: (1) The help of the physicians in a community in *promptly* reporting to the health officer not only the communicable disease, but the usual and obscure disease. (2) The employment of a uniform method in obtaining data, such as that furnished by the state department in its regular investigation cards, or in special instances, on a card devised by the health officer himself. (3) Prompt cooperation in the outbreak with the district sanitary supervisors and the state laboratory men. (4) Close liason with the local boards of education, school principals, school teachers, school nurses, school doctors, and truant officers. (5) The maximum amount of information concerning his territory in possession of the health officer—such as sewer and water maps, names and addresses of customers of leading milk dealers, data concerning waste from factories, gasworks, etc.; a sanitary map designating potential disease breeders, such as neglected dump-heaps and filthy families.

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With this general information available and the way paved for immediate cooperation between himself, local physicians, and the state department investigators, the health officer has at hand at least the preliminaries requisite for the investigation of anything, usual or unusual, that may occur.

During the past year six outbreaks of different kinds have occurred in and about my vicinity which furnish valuable suggestions for research even though they have led to no definite conclusions.

At the hamlet of Coram on Long Island, during the month of February, the host and hostess at a church social allowed their thirteen-year-old son to leave his bed, where he had been confined by the early stages of influenza, that he might join in the festivities. Forty people promptly developed influenza. Seventy-five per cent of these were among the fifty that had attended the social. This outbreak clearly illustrates the importance of early stage infectiousness and the training of the public as to the need of isolation of the so-called common cold.

In August, at Millers Place, L. I., an outbreak of diarrhea followed the sale of ice cream at a ball game. A delay in the plating of fecal specimens terminated in investigation that was started.

Six cases of food poisoning in the members of one family resulted in two deaths at Port Washington. No results could be obtained because of no notification till after the fatalities had occurred and because of the lack of a skilled pathologist.

At another time delay in reporting caused a lost opportunity for research in respect to five severe cases of infectious jaundice.

An outbreak occurred at Sayville following a turkey supper given by a lodge of Odd Fellows on May 24. One hundred and forty five persons attended this supper, nearly all [illegible] diarrhea promptly following, and thirty sufficiently ill to call a doctor. Cramny abdominal pain, diarrhea, light brown to greenish foul-smelling stools, high temperature, and prostration were the predominating symptoms in those obliged to seek treat-

*Presented at Annual Conference of State Sanitary Officers and Public Health Nurses at Saratoga Springs, N. Y., June, 1922.

ment. There were no fatalities and all had recovered by the end of a week.

The outbreak, unfortunately, was not called to the attention of the health officer or sanitary supervisor until three days after the feast, and therefore no food remained except the same brand of canned peas which had been used, the contents of which cans proved to be perfectly good. The supper had been prepared by four reliable women, none of whom had had any form of intestinal disease. Examination of the stools of three of the victims disclosed a para-typhoid baccillus, not the human B. paratyphoid, but the variety found in animals.

The building in which the supper was held is known to harbor rats and mice and it is possible that the food infection may have come from this source. Investigation of this outbreak is still in progress, the organism isolated being tested against known strains of B. paratyphoid, and active campaign of rat and mouse catching going on to determine if similar organisms can be found in them. Had this unusual trouble been brought more promptly to the attention of the health officer or sanitary supervisor more might have been learned from the food which was eaten. The presence of the unusual organism in the stools of those sick, however, suggests the possibility that outbreaks which have been considered due to ptomaines may be the result of animal infection.

Contagion on Milk Route

In the township of Huntington during the thirty days preceding May 3, 1922, there had been reported four cases of scarlet fever, all widely separated and bearing no relation to each other. This was not startling in a township of 15,000 people. On May 3, 1922 between 12 and 12:30 p. m. there were reported to me fourteen cases of scarlet fever. Fourteen cases in half an hour was startling. An immediate canvass of these cases showed on the complete investigation cards of the state department the following facts:

The cases were widely separate; had no personal contact; the youngest was 18 months and the oldest 67 years; they had all developed sore throat on the 1st and 2nd of May and a rash on the 3rd and—*they all took milk from the same dealer.*

This information was obtained in about two hours' time and by 3 p. m. the trail had led straight to a 19-year-old son of the milk dealer, who, with his father, was most concerned in the milking. He had a sore throat which a culture later showed to be due to the Streptococcus hemolyticus; he had a cough as the result of inhaling smoke at a brush fire; but—he had no rash when first seen and had not observed a rash previously. Nor did he subsequently desquamate. Nevertheless, it is most probable that he had scarlet fever. A streptococcic throat, a cough, and an open milk pail spelled trouble. He was at once isolated, the sale of the milk stopped for twenty-four hours until all apparatus could be sterilized to destroy residual infection and an examination of the cows made by a competent veterinarian. This examination disclosed a particularly healthy lot of cows, only one cow showing an insignificant scratch on one teat, which cow, to be absolutely safe, was excluded from the milking.

The board of education agreed without question to the health officer's advice in regard to the inspected open schools and gave permission for the employment of two extra school physicians. These physicians, with the school nurse, the district public health nurse and the health officer, made daily morning inspections of all school children, and the afternoons were devoted to the investigations by the school and district nurses and the truant officer of all absentees.

This follow-up work of absentees yielded more results than the school inspections: for while no cases of scarlet fever were discovered in the schools, three cases were found in children who had been kept home from school by their parents in fear of their "catching" scarlet fever.

Between the dates of May 3 and 10, fifty-two cases of scarlet fever were reported and all were on the route of this one milk dealer. The date of onset of the last case reported was May 10,—just seven days from the time the infected milker was excluded from the milk.

The milk dealer on whose route the trouble originated owned 15 cows, produced about 160 quarts of milk a day, which was delivered to 91 families consisting of 390 persons. In cooperation with Dr. Overton, Dr. Noble, and Miss Williams of the state department, this route was thoroughly gone over, not only for scarlet fever but for other diseases. Twenty-nine cases of sore throat were discovered, these throats presenting an identical appearance with those accompanied by a rash, but with milder constitutional symptoms. Adults and children who had recently recovered from measles were especially susceptible to both the sore throat and scarlet fever. The combined sore throats, with and without eruption, numbered 81. Forty-seven throat cultures were taken and of these, 33 showed streptococcus hemolyticus. A map of the milk route was made, customers being indicated by black dots, scarlet cases by red circles, and sore throats by green circles. No matter where the black dots led the red and green circles followed. In other words, a map of the milk route was a map of the scarlet fever and sore throat. Neither scarlet fever nor sore throat developed in families where the milk was boiled. The scarlet cases varied from extremely mild to severe. In some instances the rash lasted only a few hours. Vomiting was infrequent: the temperature range was from 101 to 105: the "strawberry tongue" was seen late or not at all; complications did not occur, and there were no deaths. The one constant symptom was sore throat. Desquamation occurred in 61.2 per cent of the scarlet cases and the amount of desquamation was in direct proportion to the amount of rash. None of the sore throat cases peeled. None of the scarlets or sore throats had had scarlet fever previously.

The outstanding points of interest in this epidemic are—its absolute limitation to the milk route of one dealer, the streptococcic hemolytic throat in the milker whose exclusion from the milk was followed in the expected time by a disappearance of the outbreak; the isolation of a similar organism from the throats of a large number of cases both with and without a rash; the absence of contact cases; the lack of complications and the zero mortality. The sore throat cases merged into the milder scarlet fever cases and seemed to be the same disease minus rash.

Scarlet Fever Research

Dr. Noble is working on the remaining step in this investigation to determine if the hemolytic Streptococcus found in the throat of the milker is of the same strain as that found in the throats of the other individuals who got sick from the milk. When all data concerning this epidemic are collected and complete, the information thus obtained may throw light on the debated question as to the identity of septic sore throat and scarlet fever.

Is scarlet fever a Streptococcus infection, or is the streptococcic invasion the result of lowered resistance due to an unknown virus? The ab-

sence of definite scarlatinal symptoms in the milker in this outbreak, the simultaneous occurrence of scarlet fever and septic sore throat in the milk consumers, the presence of what appears to be the same organism in the throats of both, and the prompt checking of the outbreak by isolation of the infected milker seem to give added importance to the streptococcus as the causative agent in scarlet fever.

While the descriptions of these six occurrences or outbreaks led to no definite scientific conclusions, they do lead unmistakably to the fact that opportunity for research is seldom lacking in a community no matter how small it may be.

An earnest effort to convince the physicians of a town or village of the importance of promptly working with the health officer, not only in the contagious disease, but in the obscure and unusual disease, prompt cooperation of the health officer with the state department and utilization of the laboratory and nurse facilities which the department affords—these things may, when least expected, lead to beneficient results, and make of the health officer a sanitarian in every sense of the word, and not merely a machine for routine daily work.

An anti-mosquito conference under the auspices of the State Board of Health of Florida was held at Daytona December 6 and 7. This conference is the culmination of a season's intensive work by Chief Sanitary Engineer George W. Simons, Jr., under whose direction the details of the meeting were arranged. At this conference the general problem of mosquito eradication was discussed.

Mortality Controversy

THAT the mortality from degenerative diseases of the inter-census years must be analyzed to gain information from these diseases past middle age as well as the rate in census years is the contention of Dr. Eugene Lyman Fisk, medical director of the Life Extension Institute, who takes exception to the statement of I. S. Falk that "the available statistics indicate that the apparent increase in the mortality from these 'degenerative diseases' to whatever cause it may have been due in the past, has in the last decade given place to a decline."

Mr. Falk's article, "Mortality Past Middle Age," which appeared in the August NATION'S HEALTH was in turn called forth by M. T. MacCarty's discussion of the same topic in the April issue in which Dr. MacCarty argued that the hygienic emphasis which has effected a saving of life in the lower age groups has had no influence on the increasing death rates at middle life.

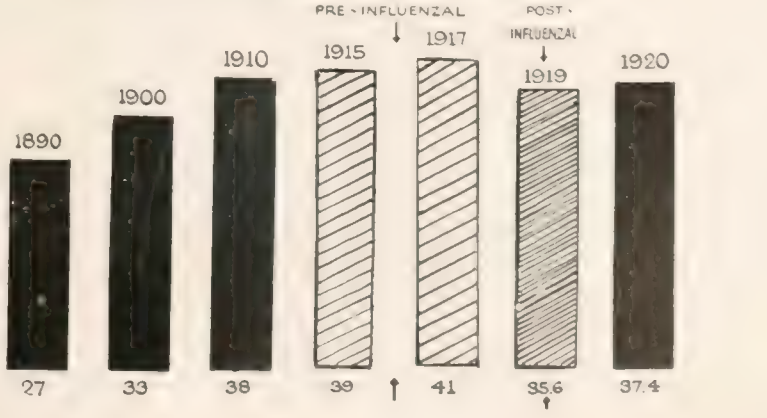
Dr. Fisk's letter and chart are published herewith:

While Mr. Falk is pretty severe in his criticism of other essayists who have been concerned about this apparent upward trend in the mortality from chronic organic diseases, he has himself omitted to consider some possible fundamental fallacies in his interpretation of the census statistics of 1920 as compared to 1910. Wholly ignoring the tremendous fact of the influenza epidemic of 1918, his concluding paragraph would give the impression that there has been a gradual improvement in the mortality from these diseases and at the later ages of life. This subject is too broad and complicated to be disposed of in this off-hand manner and by the mere presentation of surface statistics. It is incumbent upon us to analyze the inter-census years and not to accept too hastily the implication of one census year as compared to another. As a matter of fact if that portion of the decade between 1910 and 1917, inclusive, had been compared with the decade 1900 to 1910 (or even with the year 1910) there is no question at all but that a heavy increase in the mortality from the degenerative diseases would have been shown; and presumably a concomitant increase in the death rate at middle life and later. A consistant and well proportioned presentation of this subject requires that the factors plainly evident in the attached chart be given fair consideration.

Unfortunately, the discussion of this subject has always been involved too much in sentiment and not sufficiently with fact. Men make up their minds that because the thesis that the mortality trend is unfavorable in later life is pessimistic, it is to be condemned; but if we are to have a clear and well balanced interpretation of the facts, we must exclude all matters of sentiment, being neither optimistic nor pessimistic, but cold-blooded students of this question, and give fair consideration to all the facts bearing upon it.

Dr. Dublin has lately produced some figures from the Metropolitan experience which do not support this thesis of any special influence from the epidemic in affecting mortality trend at middle life and later. This, of course, applies to life insurance policyholders—a selected class. Nevertheless, he has advised caution in interpreting these figures. And all who discuss this matter should fairly present the facts relating to the whole experience of the decade and not risk their conclusions wholly upon a comparision of 1920 with 1910. That an abrupt and remarkable change took place in the trend of mortality from these diseases in 1919 is evident not only in America but in British mortality. In 1920 there was a moderate rebound; and even in life insurance experience as reported by the Metropolitan Life Insurance Company, there has been a decided increase in the mortality from these diseases in 1922 as compared to 1921, i.e., an increase in the death rate at age 45 to 60 of 21 per cent in 1922 as compared to 1921, largely due to an increased rate for the organic maladies.

This question of extending the life span beyond age of fifty and of improving the physical condition and working capacity in these later decades of life is still the greatest health problem that confronts civilized man.



Housing to Secure Individual and Civic Health

Disease and Delinquency Follow Overcrowding and Insanitation

By BERNARD J. NEWMAN, Managing Director, Philadelphia Housing Association, Philadelphia, Pa.

THE house is a powerful influence for good or evil in the lives of its occupants. If it is structurally safe and in a sanitary condition, it protects its tenants from certain safety hazards, or from exposure to conditions that would tend to lower their vitality or bring them in contact with organisms largely responsible for causing disease. If it is overcrowded or dirty, if it lacks adequate light and ventilation, is damp and attracts those insects that are carriers of disease germs, it is a menace to public health. The effect of housing defects may be of only gradual growth but it is nonethe-less certain to appear. The only safeguard against its occurrence is the elimination of the cause. That is, "safety first" in housing requires the prevention of insanitation, structural deterioration, overcrowded occupancy or like evils that make a dwelling less fit for human habitation.

Insanitary houses work their greatest harm on children. The younger the child, the less able he is to overcome adverse influences. Child mortality is highest where home conditions are bad. Childrens' diseases are more prevalent in areas where homes are built closely together and there is greater frequency of contact between the sick and the well. It is more difficult to prevent disease among children when they are in close contact with filthy conditions, or where insects like the fly, the louse, the bedbug or the mosquito are attracted to, or breed near, the home or person. Child growth is stunted in mind and body where the home is poorly ventilated, inadequately lighted, or overcrowded.

Morality is harder to inculcate in the child who sees immoral conduct commonly practiced by the occupants of overcrowded rooms. The highest percentage of delinquents coming into the courts, either as juvenile offenders or adult criminals, are from a bad housing environment. In like manner the adult finds the poorly ventilated and dirty home a predisposing cause for pneumonia, tuberculosis, and other respiratory diseases. With scarcely an exception, other things being equal, morbidity and mortality rates are highest for people living in insanitary homes. There is a vast mass of data available to show that health, mortality, and civic righteousness are most common in the good house in a good neighborhood.

It is commonly believed that bad housing is found only in big cities. This is a mistake. It is found also in the small cities, mining towns, and country villages. As a matter of fact, an individual dwelling standing far away from other houses may be so poorly designed and equipped, in such bad repair and kept in such a filthy condition that its tenants may be subject to almost as grave hazards to health and well-being as a family in the city slums.

Housing Fundamentals

In determining the safety of a house for occupancy, certain fundamental requirements should be taken as a basis of measurement. The building should be so constructed as to secure for each room adequate light and ventilation. Light is required for clear vision, for its germicidal value, as well as for its psychological effects. It aids in cleanliness in that it reveals dirt. To get adequate light not only should each room have ample window area, that is one-tenth of the floor area, but the windows should be so placed that the light which enters may be distributed throughout the room.

Adequate window area does not necessarily imply adequate light. The glass should be transparent and window panes kept clean. Dirty window glass may shut out 30 per cent to 50 per cent of the light. Closed shutters, so often found in rural houses, to protect the carpet from fading, nullify the purpose of the window. Windows opening on narrow yards or courts have their value reduced if the open space is too narrow to permit a 45 degree angle of light at the base of the window. In old buildings, if additional window area to off-set a low angle of light is not feasible, the reflecting walls of the adjacent building should be whitewashed or painted white. In like manner, if halls or rooms lack adequate light, the walls and ceiling should be painted a light color not only to increase the light of the rooms but also as an aid to cleanliness.

Windows serve in most American houses as a means of ventilation as well as of light. Ventilation, or air in circulation, provides under ordinary conditions, air fit for breathing. It dispels dampness, removes odors, supplies an adequate amount of fresh air. Windows should open top and bottom and, where the need requires in winter, should be provided with inexpensive ventilators in the form of deflecting boards or cloth screens admitting air but preventing chilling drafts. At night, in summer and winter, windows in sleeping rooms should be open. Night air, contrary to general belief, is beneficial and not harmful.

Right conditions of ventilation call for air neither too dry nor too moist. Air without adequate humidity dries the mucous surfaces of the body, exposes persons to respiratory diseases, and increases the cost of adequate heating. In like manner air that is too moist has a detrimental effect and interferes with the normal functioning of the body. The danger of too dry air on the one hand or too moist on the other is very real in homes where families are poor. In winter, especially, where all the members of the family congregate in the kitchen and burn lamps and cook their meals with doors closed and cracks stuffed with paper and rags, the hazard is very real.

Houses with windows opening only upon narrow side yards, alleys, or courts are more difficult to ventilate than houses with windows opening upon unobstructed areas. Likewise, rooms with windows on only one side are difficult to ventilate. It is good practice to have windows on two sides of the room or, if this is not feasible, windows so placed in relation to the doors that through circulation of air may be obtained. Abnormal temperature in summer may be avoided on top floors if attics or air chambers are between the ceilings of such floors and the roof. Without exception, houses without studding or without an air space between the plaster and the brick or stone wall are more dif-

ficult to heat, and if normal temperature is not maintained by furnace or stove their walls will become damp. The same condition is found in cellars not ventilated and in cellars with dirt floors of certain soil. To remedy such a condition daily ventilation of the cellar and concreting of the floor are necessary. Walls may become damp if the pointing of bricks or stones is not maintained.

Sanitary Equipment of House

Of importance almost equal to adequate light and ventilation is the sanitary equipment of the house to provide an ample supply of pure water and the safe removal of liquid wastes. Where the town provides water from a common filtered source, the householder is mainly concerned to see that it is piped within the dwelling. This secures a supply from a spigot in the kitchen, with the sink beneath and a properly trapped drain leading therefrom. A spigot in the yard involves unnecessary and at times hazardous exposure to the weather. It is desirable to have an additional supply to a bathroom that a bathtub may be installed. If the town does not provide pure water, the next best source is the artesian well. Often a shallow well or a spring is available and used. In such a case no privy, stable, or similar source of pollution should be near the well, and its sides should be enclosed in non-permeable masonry, leaving only the bottom open to permit the filtering of water. The top of the well should be covered with concrete or well matched flooring, so laid that the drain will be away from the well, and a drip-trough supplied to take away the surplus from pumping. If the supply is from a spring, regardless of its proximity to the house, the spring should be protected in the same manner as the well. Should the supply be from a cistern, extraordinary precautions are needed to protect the water. Attaching deflectors to the down spout will insure the cleansing of the roof of dust, bird dung, and trash before the rain water is sent to the cistern. Covering the cistern, periodically cleaning the tank, and an occasional dose of a harmless disinfectant will make the safety of the water certain. Water for washing purposes may be stored in a hogshead or container for days at a time, but it is well to use fresh drawn water for drinking purposes and to keep pails for this water covered when not in use. These pails should be thoroughly cleansed each day with soap and water.

The delivery of water to a house necessitates a system for taking the waste water away. Dwellings should be sewer connected, and equipped with a sink, a bathtub and an indoor flush toilet, each properly trapped to prevent the pollution of the air of the house with drainage odors, and all should have plumbing installation of the "open" type. Where there are no sewers, disposal to a septic tank is advised and in the absence of this, the dry closet is recommended. If a privy vault must be used great care is necessary to keep the vault free from leaks, fly-screened, and periodically disinfected with lime. The process of disinfection, prior to the final disposal of all feces from persons ill with a communicable disease, would reduce the hazard of the privy vault. Yard sites for water closets are undesirable: the water frequently freezes, and their use is discouraged by bad weather, this latter causing an interference with the normal functioning of the bowels. The long hopper closet is the most preferable for outdoor use. This should be kept clean, in good repair and no solids such as cloths, or brushes, forced into it, for clogging of the drain will result.

Other household wastes besides sewage are garbage, ashes, rubbish, tins, old paper and like materials. Where the town collects such wastes the householders' only care is to see that garbage, ashes, or tins are placed in receptacles and other wastes are securely bundled. When the householder must dispose of garbage that decays, attracts vermin, and gives off unpleasant odors, burning or burial are good methods. The puncturing and flattening of tins that they may not collect water will prevent breeding of mosquitoes. Never store trash in cellars or back yards. Householders should discourage the creation of so-called "dumps" in depressions or on vacant lots except for the disposal of ashes and clean earth from excavations, but where dumps are used for all sorts of waste they should be frequently burned over.

Keeping Floors Clean

The proper disposal of waste matter is a great aid to cleanliness but there are other aids equally important. Simple matters as floor sweeping are often neglected or poorly done. Floors with loose dirt soon become begrimed. They are hard to clean and suggest uncleanliness of person and a careless manner of living. The common practice of sweeping dirt only out of sight under large objects or down cellar stairs is a menace as well as being slovenly.

This practice causes dustiness and where communicable diseases are present gives bacteria dirt particles to which to become attached, and they, in every gust of wind or rustle of air, rise to the breathing level of the householders. Such accumulated dust becomes a menace to the children who creep or play on the floor. In a house where sweeping and dusting are not properly practiced every article of furniture, loose wall paper, and all rough surfaces become dust collecters.

But cleanliness requires more than allaying dust. Greasy walls where paper has neither been renewed nor cleansed are, especially in dark rooms, a cause for the retention of bacteria of certain respiratory diseases and become a medium for their spread. Even repapering over old paper may contribute a health hazard in an unclean and poorly lighted room. Painting exposed surfaces is a most wholesome preventive of uncleanliness as it lends itself so readily to scrubbing. It is better than wall paper for all walls but especially those where the light is poor or the rooms are used for the care or handling of foods. The best germicide introduced into any home is soap and water with a good muscle and scrubbing brush to make them effective. The use of soap and water safeguards against vermin spreaders of filth and carriers of disease organisms, the cockroach, bedbug, fly, and other insects attracted by dirt. Screening of windows, proper storage of foods, and covering of waste receptacles, rat-proofing of spaces between floor beams and the exclusion of animals from the house, all contribute effectively to the sanitation of the home.

Cleanliness within a building has a more direct bearing on the health of the occupants than cleanliness without but it is equally effective, out and in, to have conditions suggest orderliness. Thus the graded lot, the grass plot, trees and shrubbery, open fences instead of high board barriers contribute their share toward making the householders more healthy minded and more alert to wholesome suggestions for his physical, mental and moral betterment.

Another factor to be considered is the safety of the structure for occupancy. Most buildings when erected are safe. The hazard comes from their use after disrepair sets in. Some disrepair is only a trivial safety hazard, such as torn wall paper. Other disrepair, such as loos-

ened plaster, may, depending on its location, be a menace. Leaky roofs usually are disagreeable, but when they contribute to damp rooms and walls they affect health. Poorly pointed walls likewise contribute to dampness; they eventually cause buckling and bulging of the walls, the support of the wall load is displaced and collapse is imminent. A broken step or weakened stair often appears as a minor disrepair but may become a major hazard where children are about or where inattention may cause one to trip and fall.

Fire hazards in most houses assume greater danger than structural hazards. Most fires originate under stairs or in closets where old papers and rubbish are stored. There are two "don'ts" that are when observed, homely virtues; "Don't store truck" and "Don't clutter up areas and passageways." The latter is specially appropriate for people who live in boarding houses or tenements. Fire escapes and stairways should always be free from obstructions. Where sleeping rooms do not open on fire escapes they should have fire ropes or chains. Where there are many people in a house there should be fire buckets or fire extinguishers conviently located. Immediate aid in the beginning of a fire may put the flame out before damage is done. Prevention is better than correction after the damage has been done. Hence the storage of quantities of kerosene, gasoline, benzin, paints, and all inflammable material in or near a dwelling should be discouraged and the practice avoided.

If a house is structurally safe, free from hazardous storage, in a fit sanitary condition for occupancy, if it is a new house and has never before been occupied, it may become a health menace if the number of persons occupying it is more than the house was built to accommodate. Overcrowding rooms brings people in too close contact when there are carriers or cases of communicable disease among the occupants. The hazard comes through the handling of common utensils, but it is especially present when "carriers" or sick persons sleep in beds placed closely together or sleep in the same beds. Even open windows and adequate ventilation are of little avail when too many people sleep in one room. A family too large for its house or one that takes in too many lodgers not only exposes its members but it helps to break down privacy and thus lays the foundation for immorality with its attendant hazards of venereal diseases.

Not infrequently occupancy hazards arise when the home is used for sweat shop manufacturing, for the sorting of old rags, hair, or for chicken killing, or when the bathroom containing a toilet is used for a sleeping chamber, or by installing a cookstove it also serves as a kitchen. When through force of circumstance houses intended for one family are subdivided into multi-family occupancy, and one room serves for cooking, eating, sleeping, entertaining friends, and caring for the sick, there is a definite injurious effect on family life. Every study of such occupancy has shown increased morbidity and mortality rates with stunted physical development of the children, and an impaired power to labor found in the adults. Occupancy of tall tenements, where compensating improvements have not been installed, has a bad effect on the wife about to become a mother and on the mother who is confined to the house because of the heavy labor involved in carrying the infant up and down the long flights of stairs.

Every householder should make the best possible choice of a future home from the available supply. Select a single dwelling in preference to a two-family house or a tenement apartment. Choose the house with the largest yard but not too large a yard to take care of. Where southern exposure is possible give preference to it. Make certain the house is in good condition, has sanitary equipment, and a heater and is in a good neighborhood. Avoid houses where the plaster has been placed directly on the brick, stone or concrete wall, for as a rule such houses will have damp walls. Keep the house in good condition, make minor repairs, but above all don't injure the property, fixtures, walls or yards by careless use or abuse. When extraordinary repairs are needed notify the owner. If he will not make improvements, move into a better house or notify the local authorities and ask their aid in securing corrections. Join local improvement associations, encourage civic pride and help organize where the town is without it a service for the removal of wastes and the proper care of vacant lots, dumps, streets and other conditions and places ordinarily a menace to public health when left neglected. Through such association encourage your town to make provisions for public health and recreation and to plan for all future developments, so that the mistakes of the past in town growth will not recur in the future. Work for city zoning to the end that changes in the use of dwellings may not start centers of deterioration in residential areas and develop into future slums.

Columbia Insurance Course

A comprehensive group of courses covering the field of insurance and related topics, to be conducted by Columbia University instructors in cooperation with representatives of the various large insurance companies, will be given by the department of university extension during the coming academic year. The course on life insurance will be conducted by Joseph B. Maclean of the Mutual Life of New York and that on insurance statistics by Edwin W. Kopf, assistant statistican of the Metropolitan Life.

Mr. Maclean's course on life insurance aims to provide a practical knowledge of the principles of life insurance, and is designed to meet the needs of home office employees, agents or anyone desirous of gaining working knowledge of the conduct of the business. Mr. Maclean will discuss its history and extent, basic principles, actuarial methods, company organization, policy contracts, underwriting, the legal aspects of the business, government regulation, and other allied topics.

Under the general head of insurance statistics, Mr. Kopf will take up the practical methods and concrete results of modern statistics as applied to present day insurance problems. Phases of the subject which Mr. Kopf will discuss include such topics as the administrative control of office and field personnel; production of business; study of operating economies; discovery of new lines of insurance coverage; collection and interpretation of hazard data and risk classification; preventative work; statistical service in modern institutions; preparation of statistical publications, and allied subjects.

The distribution of radium at a remarkably low price to the medical profession is promised as the result of a consolidation of Belgian and American interests effected recently at Brussels, according to an announcement by the Radium Company of Colorado. At a meeting in the Colonial Museum at Brussels, attended by King Albert and 500 eminent scientists, it was disclosed that the Société Generale de Belgique had erected, at a cost of 3,500,000 francs, a plant, which already was in operation, at Oolong, Belgium, for refining radium ores brought from the Belgian Congo.

Progress In Active Diphtheria Immunization

WHEN diphtheria antitoxin first came into general use in 1895 it was hoped that diphtheria would be robbed of its terrors. Although this hope has to a considerable degree been realized, and the death rate from this disease has been reduced to less than an eighth of its magnitude a quarter of a century ago, the irreducible minimum has not been reached. The fact that the death rate from diphtheria and croup in the Death Registration Area is, at the present time, approximately 15 per hundred thousand, while a source of satisfaction and a proof of the efficacy of past endeavors, should in no way lead to a relaxation in the present program. In spite of the fact that we probably know more about the cause, spread, and methods of control of diphtheria than any other acute communicable disease, there is still room for progress in theory, and still more in practice.

The passive immunity afforded by diphtheria antitoxin is of a transitory sort, hence the satisfaction with which the health worker received the Schick test for determining immunity and the toxin-antitoxin mixture for providing protection of a comparatively permanent nature to non-immunes. A recent contribution to the technic of administering the toxin-antitoxin mixture is of noteworthy importance.

Dr. William H. Park of the Bureau of Laboratories of the Department of Health of the City of New York, whose name is inseparably connected with past achievements in diphtheria prevention, has recently decreased the amount of toxin and anti-toxin administered in the immunizing mixture and finds that the new preparation gives equal protection and has the advantage of causing less disturbance in children of all ages. This advantage is, of course, more important in older children and adults where the reaction is more annoying. In a recent communication to the NATION'S HEALTH, Dr. Park says:

So far as I can judge from animal experiments and the use of the test in a good many hundreds of school children, a preparation which contains in one cubic centimeter, one-tenth of an L plus dose of toxin neutralized by antitoxin to a degree that one cubic centimeter will cause paralysis in two and a half to three weeks, and that five cubic centimeters will cause paralysis and death, will give immunizing results equal to a preparation which contains in one cubic centimeter three or five L plus doses of toxin with three or five units of antitoxin. One cubic centimeter of each has the same toxicity in the guinea pig. With the smaller amount of toxin used the proportion of antitoxin is less, that is with the one-tenth of an L plus dose in a cubic centimeter we make the preparation by adding three eighths or four-eighths of a unit of antitoxin per L plus dose instead of a whole unit. The reason for this is that we would not have the same toxicity if we added the same proportional amount of antitoxin, and also the toxin goes to pieces less in making up the preparation. . . . The advantages of the small amount of protein which the diluted toxin contains are very striking in that the older children and adults have much less local and constitutional disturbance.

I am not quite sure that the one-tenth L plus dose is the absolute final amount that we will adopt as a standard. It may be one-fifth of an L plus dose, but I am sure we will drop to one or the other.

The following summary shows the percentage of Schick positive children remaining immune with the different strengths of immunizing mixtures used.

Preparation	No. Children	Amt. toxin in 1 c.c.	Per cent Immune
48	190	1/10 L plus dose	90
47	301	1/2 " " "	95
50	198	1 " " "	76
44	127	3 " " "	96
46	191	3 " " "	90
41	254	5 " " "	85
45	56	5 " " "	90
42	176	5 " " "	88

A comparison of the large and small doses in respect to the amount of reaction shows:

	1/10 L plus	3 and 5 L plus
No reaction	25%	0%
Slight reaction	64%	41%
Moderate reaction	11%	37%
Marked reaction	0%	22%

In the 22 per cent showing marked reaction to the large doses, 6 per cent were classed as constitutional reactions.

At the present time about 280,000 school children in New York City have been Schick tested and immunized whenever necessary. This figure is about 40 per cent of the number of children who have received circulars and consent slips with the request that testing be permitted. The same procedure has also been carried out on about twenty thousand children of pre-school age. There have been no accidents and during the past two years the death rate for the city has dropped from 21 per hundred thousand to 16.

The New York City Health Department now employs a force of ten physicians, eight nurses, and eight clerks for the Schick testing and immunization of school children. With this force it is expected that by January 1 all the public schools will have been covered and that by June 1 all the parochial schools will also be finished. The city has appropriated in the new budget funds sufficient to make permanent a diphtheria force of five physicians, five nurses, and five clerks. When the present school population has been tested and immunized, which will in all probability be accomplished this year, it is thought that the permanent force now provided for will be sufficient to immunize the entering scholars and to make available similar benefits for all children of the pre-school age that can be persuaded to attend the Baby Health Stations.

The accomplishments in Auburn, N. Y., show what results may be expected from a similar campaign in a smaller city. Auburn is a progressive city of about thirty-six thousand population, with a school population, including parochial, of about seven thousand. During the last ten years diphtheria has been increasingly prevalent in this city. Soon after the opening of the schools in the autumn of 1921 it became apparent to the school physician that a mild unrecognized epidemic of diphtheria had existed in the previous summer months in the Polish and Italian sections of the city. The pupils of one entire school of 700 children were cultured. Nearly 45 per cent of the cultures were positive and many of those tested were virulent strains. Early in February of this year a campaign for immunization was begun under the direction of Dr. Frederick W. Sears, the county health officer. Consent for testing and immunization was secured for about 4,200 of the seven thousand children in school. About 2,400 of these gave positive Schick reactions and three immunizing doses were given to 90 per cent of these. No unfavorable results were encountered from either the tester the immunization. The work was completed in the middle of March. From May 8 to June 9 there were no cases of diphtheria under quarantine in the city of Auburn. In September Dr. Sears had the opportunity to retest about 1,400 of the children who were positive the previous spring. About 65 per cent of these showed an absolutely negative result, and of the remaining 35 per cent about 20 per cent showed a very slight positive reaction. There were very few that showed only a typical positive reaction and it is believed that had the re-Schicking been delayed two or

three months most of the 35 per cent would have become negative. The work in this city shows that it is not necessary to secure 100 per cent immunity and that the reduction of the non-immunes in a community to a small percentage is sufficient to secure control of the disease. In a communication to the NATION'S HEALTH, Dr. Sears says in regard to the administration of toxin-antitoxin for the production of immunity, "from the results which I have seen I feel thoroughly convinced that it is the only practical method for the control of diphtheria."

Dr. F. X. Mahoney, Health Commissioner of Boston, writes that work in their city health department was started in May, 1922 and that they "feel very much encouraged at the reception of this work by the public." Nearly twenty thousand Schick tests have been made and about half of the positive reactors have been given three injections of toxin-antitoxin. School health work in Boston being in charge of the Board of Education, the health department has limited its work to the pre-school child, inmates of various institutions, and children in the parochial schools.

The cities here mentioned are not the only ones that can be cited in support of the contention that toxin-antitoxin immunization should be a routine procedure in every school in the country. In view of the lack of all health work in many rural communities it cannot be hoped that this will be accomplished at once. It is not, however, beyond the bounds of reason to urge and expect every city and town that does support medical school inspection to give this problem serious thought. It seems quite certain that no point of attack will permit greater achievements in proportion to time, labor, and money expended than will the use of the toxin-antitoxin mixture in preventing the ravages of diphtheria in the schools.

There has been little fault found with the use of the stronger mixture that has been in general use up till now. Additional refinements are none the less welcome. Dr. Park's contribution in demonstrating that a smaller dose may have equal immunizing powers with no danger of marked reaction to the foreign proteins injected removes the last possible objection and diphtheria should rapidly approach, though it will probably never reach, the extinction where now rests the Dodo.

Health in the Dye Industry

BY H. J. CONN, CHAIRMAN, COMMISSION ON THE STANDARDIZATION OF STAINS, NEW YORK CITY.

ONE small but rather important phase of the dye industry is the production of stains used for biological purposes. This is important because their use for this purpose has a distinct relation to public health. Stains are used in the bacteriological laboratory for the diagnosis of several diseases such as diphtheria, tuberculosis, typhoid, malaria and several others. They play an important part in the examination of milk to determine its sanitary and keeping qualities. When diseased tissue is examined in the case of some unknown disease, stains are absolutely necessary in order to learn what pathological conditions exist, as for example in examining tumors that are suspected to be cancers. They are, moreover, absolutely indispensable to the investigator who is obtaining new knowledge concerning the nature or cause of any disease.

The stains used in this work are in many cases dyes that are also widely used in the textile industry. In other cases they are special dyes that perhaps have never been used for textile purposes, or if they have been so used in the past they have now been replaced by other dyes that are more practical for dying fabrics, and are, therefore, obsolete so far as concerns the textile dye industry.

Before the war biologists were absolutely dependent upon Germany for all of these stains. Not only were the basic dye manufacturers located abroad, but the only concern which specialized in biological stains was in Germany. This is a very highly specialized line of business requiring a knowledge and technic which the ordinary dye manufacturers do not have; and as only this one concern developed this line before the war, the whole world was dependent upon it for biological stains.

The exclusion of German products during the war not only stimulated the dye industry in this country but caused certain new concerns to be formed in America which made a specialty of biological stains and closely related products. At first their stains were not wholly satisfactory but, thanks to the cooperation which has been brought about between the manufacturers and biological laboratory workers, at present practically the entire needs of biologists in this line can be supplied by domestic products.

The investigation which has brought about these results is one of the most extensive pieces of cooperative research that has ever been organized in this country. It began through the efforts of the Society of American Bacteriologists to obtain satisfactory stains while deprived of the German supply. Realizing that the matter was not a special bacteriological problem but was one of much broader interest, this society called in the assistance of other biological societies and finally through the assistance of the National Research Council, cooperation was secured of all the organizations considered to be especially interested in such problems. Members of the respective societies were addressed in circular letters and in this way the biologists most interested in biological stains were located and they have been actively cooperating with the committee appointed by the Research Council. The collaborators thus secured number nearly one hundred, and at the present time a permanent commission on the standardization of stains has been formed which is to be composed of all those of these collaborators who care to be on it. This means the continuation of the work in the future.

Such an investigation as this, of course, requires a certain amount of money to keep it going. Fortunately, most of the work has been voluntary; so a great deal has been accomplished at a comparatively small expense. Nevertheless certain expenses were unavoidable and when the investigation was begun it was hampered from lack of resources. The scientists interested in the matter could not afford to finance it themselves, and the business in stains is not a sufficiently profitable one so that the expenses could be charged to the industry. To relieve this situation the Chemical Foundation kindly offered to finance the work and up to the present time its continuation is dependent upon this support. The work is still far from complete, but more and more important results are being obtained all the time. The progress so far made is very gratifying and promises that the future will bring about a much better situation in regard to stains, both as to quality and availability, than existed before the war.—H. J. CONN, Chairman.

The Medical Inspector On the Open Road*

Maryland Rural Children Welcome Itinerant Public Health Doctor

By E. BLANCHE STERLING M.D., United States Public Health Service, Baltimore, Md.

THERE were three thousand throats to be inspected, twice as many eyes to be tested, and many times three thousand teeth to be examined. Besides these, there were all the other items of a routine medical inspection, the weights and measurements, and the special examinations. Altogether, it was enough work to last several months since it was scattered over a country with only the usual supply of good roads.

This particular county was one of the most beautiful in Maryland, with rugged hills, gently-rolling farm lands, long stretches of woodland, and several rivers making their way to the Chesapeake Bay. Scarcely a dozen settlements were large enough to be called towns. Almost seventy-five per cent of the schools were of the one-room type. As in every country district, many of these little schools were pitifully inadequate in construction, in equipment, in conveniences, in hygienic requirements, and sometimes even in ordinary comfort. Each, however, housed its quota of the approximately four million children in the United States who have no better schools to go to.

The superintendent turned me over to the supervisor, with the courteous assurance that she would assist me in any way possible, which she undoubtedly did. Her hearty cooperation, clear vision, and sense of humor made her the sort of co-worker one devoutly prays for, but scarcely dares hope to obtain.

The school I began in was about as far removed from the ordinary little one-room rural school as one can imagine. It was a beautiful modern building erected during the war by the Federal Government on the Government Reservation. Medical inspection here was a simple matter, with a private office where each child could be taken separately for its examination. It was only when I fared forth into the county that anything like expert management was required.

Comparatively few of the county schools could be reached by railroad, and one of our means of transportation was an open Ford car with no self-starter. That car was the means of bringing to light the real chivalry of the men and boys of the county. It was cranked by all of them, old and young alike. In all sorts of mishaps, from dangerous skidding on the icy highway to running out of gasoline on a lonely, muddy road, there was always one to the rescue. When ice or snow made motoring risky, we visited schools in the railroad towns. I shall never forget the helpfulness of those Pennsylvania train crews. A medical inspector cannot travel light. A suitcase full of the paraphernalia of examination, scales for weighing, and a Boston bag furnished considerable impedimenta. However, one can manage quite well with an obliging conductor or brakeman to lift them on and off the trains, and some husky schoolboys as transports between school and station.

When the spring thaws set in, there were certain roads in the low-lying "necks" of land between the rivers where the seas of mud made one shudder at the thought of driving an automobile. Then we took to the open road with a horse and buggy. Driving in this fashion through lovely woodland roads in the Maryland springtime to little far-away schoolhouses full of children from farm and village—this is a thing to hold in one's memory to a green old age.

Medical inspection was new in this county, and neither children nor grown folks knew quite what to expect. Country school children have few visitors. Not many people come in from the outside to do anything for them, and hence our arrival always aroused an intense interest. They had heard of this new thing, and were often a little awed, or dubious, or shakey, at first. But by the time we left a school the children generally had had as good a time as the supervisor and I.

The procedure in each school was practically the same, though of course it was sometimes modified to suit particular circumstances. The ice was usually broken by appealing to the child's desire to do something. The larger boys were asked to bring in the suitcase and scales. Practically all children old enough to go to school are interested in their weight, and the appearance of the scales gave them something pleasant to look forward to. The Junior Red Cross had paid for those scales and the children had a proud sense of ownership.

Before the examination came the history taking—filling in the name, age, sex, grade, previous illnesses, etc., of each child on his examination card. In large schools this can be done beforehand by the teacher or assistant, but these little schools are too widely separated to make an extra trip with the cards practicable. It did not take long here, the inspector and nurse or supervisor being often assisted by the

*Approved for publication by the Surgeon General.

In the early spring when country roads are almost impassable, the medical inspector abandons her motor vehicle for an earlier and surer mode of transportation

Over the open road, the inspector travels, by horse or motor, a symbol to the Maryland rural school children of their country's interest in their welfare.

teacher or some visitor. Sometimes an older brother or sister can supply information impossible to obtain from very little ones. In taking these histories we sat in the school seats with the children, making friends with them as we went along.

When the cards were ready, the children stood in an orderly line, and each walked up alone for his individual inspection. Only very rarely does a child object to this examination. Their little mouths often fly open before you are ready to inspect their throats. There are several things to be done before the tonsils are arrived at. Lameness or deformity should be noted as the child walks towards the inspector. Orthopedic surgeons do not, as a rule, set up offices at country crossroads, but follow-up work may be able to start the parents on the way to find one. A country mother does not want her child to grow up crippled or deformed any more than a city mother does, but it is much easier for the latter to find means of preventing it.

Every child is inspected for the presence of contagious eruption on the hands or face. Indications of the presence of adenoids must be noted, as well as enlargement of the glands of the neck. Very important is the examination of the eyes to detect signs of trachoma which, if not treated, may result in total loss of sight. Finally, the tonsils and teeth are inspected, and the child goes to his seat, the next one in line taking his place.

By the time this part of the examination is over, we are all pretty well acquainted, and ready to enjoy the weighing and measuring to the last ounce and inch. When the order "Take off your shoes" is given, one of the real thrills of the whole wonderful adventure is felt, and an excited little shuffling takes place. Occasionally, a boy has on heavy top boots which he can't get out of without the help of a bootjack. Since neither school commissioners nor medical inspector has had the foresight to supply this important article, the boy has to be weighed with his boots on. But he gets weighed just the same, and the fact that he is booted is entered on his record. No country child is going to suffer the disappointment of not being weighed simply because he can't fulfill some technical requirement.

In addition to their height and weight, older boys are much interested in their chest measurements. I have had high school boys come back to try to add an extra fraction of an inch to their chest expansion on hearing that some other boy had made a better record.

Testing the vision by means of the Snellen charts is a simple matter, but the tests for defective hearing and the Binet-Simon tests of intelligence are not easy to manage in a one-room school. These are difficult because there is no place (in winter) where you can get the child alone and quiet, with nothing to distract his attention. On a warm spring day the child of suspected mental defect can be taken out of doors and tested there. If done in the schoolroom, I would take the child to the rear of the room, while the supervisor would gather all the little restless people up front and tell them a story in soft, low tones.

The further examination of those children who seem to need it can be easily arranged in a one-room school. If there is a vestibule and it is not too cold, that will answer, but a warm vestibule is a luxury not often found in the country. We used to carry an ordinary bed sheet in the suitcase, and the nurse would hang this on a cord stretched across a corner. This was not a bad examining room, even if sometimes there was no way to write down your records except by holding the card up against the wall. Sometimes a recess period was utilized for this purpose. When the children had all gone out to play, the "specials" were sent, one at a time, back into the schoolroom for a more extended examination.

When everything was finished, we would pack our things away in that battered old Government suitcase, the boys would lift it and the scales into the car, crank up, and we were off. Of course the supervisor took advantage of these visits to look after her own job, and one medical inspector learned something of rural school teaching that year.

The Human Side

Probably those children of the Maryland farms and villages were much like other country children, but they seemed like very special children to us—just like your own children seem to be different from other people's children. There was chubby, fascinating Grace Louise who especially requested that she might be the first child examined in her school; and dainty, adorable Ruth who held up the whole line while she threw her arms around me. These were very little pupils, but they were no more

These husky little rustlians take kindly to the physical examinations, one youngster having trailed the doctor for several miles demanding he be tested.

Dating back to ante-bellum days, this deserted "little red schoolhouse" is one of the type fast disappearing.

charming than the lovely "big girl" who at lunch time prepared the small girl's orange so that it could be eaten easily and daintily. This was just a bit of that helpful "family spirit" sometimes found in these little schools. I am sure I was never the recipient of a more chivalrous kindness than that shown by two gallant high school lads who stood out in the cold mist of the worst sleet storm of the winter and worked for ages trying to start the engine of that cold, stubborn, cranky, old Ford.

In one school a small boy gave me a York Imperial apple, and I had it made into a pie. Then I wrote the child a letter on Government stationery, telling him how good the pie was. That boy and all his kinfolks know that the United States Public Health Service is made up of just everyday folks who like apple pie. Then there were the pretty twins and the little girl whose "grandmother said if her tonsils had to be cut they were going to be cut"—all three of whom insisted on staying out of their class a large part of the time in order to help me. I was sorry I didn't have enough things they could do.

I think I did one absolutely unprecedented thing in school medical inspection that year. We had driven to a little school that day in a buggy, the supervisor and I. Before the spring thaws began, my nurse was providentially removed—not to a higher sphere, only to Missouri. I say providentially, because when a suitcase, scales, two personal bags, and two women, not to mention provender for the horse, are packed into a buggy there is no room for another person. If we used a heavier, two-seat vehicle we were apt to get stuck in the mud. On the spring day in question we had all our paraphernalia stowed snugly away in the buggy, and were just leaving the school when a fine looking boy about twelve years old rode up on a bicycle. He explained that he had not been able to get to school early that day because of certain home duties. We expressed polite regret that he had not been present for the examinations, and drove off. We jogged along past a farmhouse, a little beyond which the road crossed a stream. I always carried a kodak, and we stopped here to get some snapshots. While the supervisor was posed on the bridge unsuccessfully trying to conceal the fact that she had no relish for this part of the job, the boy on the bicycle appeared in the left foreground.

"Mother said would the doctor come back and examine me?"

The supervisor and I exchanged harrowed glances. Doubtless she was thinking, as I was, of all those goods and chattels so carefully packed away in the buggy. But here was a boy who wanted the examination, and back there in the farmhouse was the mother who had sent him after us. We went back. In the farmhouse kitchen, with its basket of downy, new-born chickens close to the stove, and pats of yellow, new-made butter on the table, the boy had his examination. The kitchen was too small and dark for the vision test, so we tacked the Snellen card to a pillar of the porch, measured off twenty feet on the ground, and tested the boy's eyes out of doors.

We often invited people to the schools on the days of the examinations. We took the Johns Hopkins professor two or three times; and the country minister, with a boundless zeal for service, was a helpful visitor to the schools in his parish. We were especially glad to have the country people come because we wanted to take them into our confidence in this matter, to show them that the medical inspection was just a friendly way of helping their children by learning their needs. I have had a plump little grandmother sit behind the bed-sheet screen with me, giving helpful information about the children who needed special attention. Young mothers have done the same.

At one school, the mothers were invited to come to the schoolhouse at the close of the afternoon session immediately following the examinations. The rain came down in a flood that day, but some mothers managed to get there in spite of it. The teacher served tea, and I talked to the women individually about their own children. In other cases after the physical condition of the child was ascertained, the parent was notified of the defects discovered.

Officially, this work was an investigation of the health conditions and needs of rural school children. In addition, it brought Uncle Sam very close to a most attractive and appealing set of nephews and nieces, the children of the open spaces.

Advance in Local Care of Dependent Children

The most recent administrative advances in the local care of dependent, defective and delinquent children are described in a report recently issued by the United States Department of Labor through the Children's Bureau, entitled "County Organization for Child Care and Protection." Administration of care for neglected, handicapped, or delinquent children by local boards of citizens, employing trained workers and aided by state boards, is, according to the report, the plan which is gaining approval in a constantly increasing number of states.

Within recent years laws requiring or permitting some form of county welfare organization of broad scope have been passed in Arkansas, Minnesota, Missouri, North Carolina, and Virginia, while individual counties, private agencies or state boards in Alabama, California, Florida, New Jersey, Pennsylvania, and South Carolina are working out similar plans without special legislative action. County organization concerned mainly with the care of dependent children is found in Arizona, Indiana, New York, and Ohio.

Control Measures in Reducing Contagion*

Proper Supervision Will Cut Children's Diseases to Minimum

By LOUIS OLSEN, City Health Officer, Palo Alto, Calif.

THE effectiveness of the modern health department is still measured largely by its success in the control of communicable diseases. Notable results have been attained along these lines in the control of certain diseases, such as typhoid fever, yellow fever, malaria, and even tuberculosis. A steady reduction is also noticed in infant mortality.

Remarkable as have been the reductions in mortality from the above mentioned causes, the same success is not apparent in the figures for some of the common contagious diseases of children. An examination of the death rates in California from scarlet fever, diphtheria, measles and whooping cough shows that the rates for 1921 are practically the same or greater than the corresponding figures for 1911. In the intervening years the rates have fluctuated, always many deaths occurring from these co-called harmless diseases. In 1921 there were 117 deaths from scarlet fever, 644 from diphtheria, 127 from measles and 191 from whooping cough, while only 147 deaths were caused by typhoid fever. During this year also, the combined number of deaths from scarlet fever, diphtheria, measles and whooping cough (1,079) was greater than the combined deaths from typhoid fever, malaria, smallpox, influenza, dysentery, poliomyelitis, encephalitis and epidemic meningitis (847). The latter total could almost include the venereal diseases (422), and still be less than the four children's diseases mentioned above.

These statistics, it must be remembered, are for immediate deaths only, and take no account of the long list of sequelae that follow. In measles alone it is estimated that there are ten cases left with serious complications that may later result in death, for each death reported. Investigations now being conducted will almost certainly show that many other serious complications of adult life are to be attributed to these communicable diseases of childhood. In the face of such figures it may be well to consider whether or not health officials are spending their energies entirely in the right direction. May it not be time to place more emphasis on communicable disease control and particularly control of some of those that are often laughed at and treated jokingly?

In presenting the subject of proper control measures it is not planned to advance any new theory or discovery that will stamp out these diseases. Perhaps there are some who are waiting for such a new discovery in the hope that a quick and easy way will be found as has been the case with yellow fever and malaria. The history of the last ten years proves that a specific remedy is not alway all that is necessary. Diphtheria, in spite of anti-toxin and the Schick test, is with us still. The purpose of this paper is rather to outline a general plan of procedure, regardless of the specific remedies that are to be employed for each particular disease, a plan of precedure that has been known for a long time and that has been proved by experience to be effective.

Reporting of Contagion

The modern theory of infection removes public health activity from the realm of speculation and places it upon a definite and exact basis. When it was discovered that communicable diseases are caused by specific organisms which are transmitted from person to person and that cases never arise spontaneously, the health worker had a sound foundation upon which to build. Control then became a matter of finding the infected persons and controlling the infected discharges for the purpose of preventing their being transferred to other persons. This underlying principle of control is as true today as ever. It matters not that the causative organism is not known for all of the diseases mentioned. They can be controlled by breaking the cycle whereby discharges from the infected individual are transferred to the uninfected individual.

Two characteristics, of such importance as to be almost cardinal virtues, in executing any plan of control are speed and thoroughness. These must be applied to every step hereafter mentioned. If they are, results will follow. A good motto for disease control is, get the first case; get every contact; prevent additional transference of infected material. The procedure in effecting proper control of communicable diseases may be separated into four steps, as follows: (1) reporting; (2) investigation; (3) institution of control; (4) release from restrictions. The steps are mentioned in the order in which they will be undertaken and in the order of their importance.

It has been often said and written that "No health department can effectively control communicable diseases without first knowing when and where cases are occurring." No statement was ever more true and an effective and complete system of securing reports is the first requisite. Before discussing the methods of obtaining reports, it may be well to state that reports minus speed are about as usual as a football team without speed. Reports by mail, in cases of scarlet fever, diphtheria, measles and whooping cough are too slow. They should be reported by telephone immediately, in addition to the written card.

Reports will ordinarily first come to the health officer from the local physicians. It is of the utmost importance that the health officer shall have the confidence and cooperation of the physicians in his community, otherwise the difficulties of disease control will be insurmountable It will be found that if the health officer is reasonable the physicians will be more than ready to do their share. Granting that the physicians desire to report, cases may sometimes be forgotten and schemes to prevent this are necessary. It has been found that a weekly summary of the morbidity situation, mailed to each physician, stimulates interest and keeps them informed as to what diseases are in existence in the community.

Not all cases will be attended by physicians and the health officer can not depend upon physicians' reports alone in combating an outbreak. This is particularly true of those

*Read at annual meeting of California Health Officers held at Stanford University, September 19 to 21, 1922.

diseases whose seriousness has been so much underestimated. The following figures illustrate this point:

FIVE YEARS OF CONTAGIOUS DISEASE IN PALO ALTO

	Cases	Physician	None
Chickenpox	289	89 31%	200 69%
German Measles	353	156 44%	197 56%
Measles	383	223 58%	160 42%
Mumps	170	75 44%	95 56%
Whooping Cough	187	120 64%	67 36%

The thing to be emphasized is that the physicians see only a fraction of the total cases, and without systematic search for the discovery of every case and suspected case, no matter what the conditions, it is almost useless to work with the small percentage seen by them. It may also properly be mentioned here that comparisons of the numbers of cases reported in different cities are misleading and lead to wrong conclusions for the reason that the city that is actively and intelligently combating disease will get reports of all or nearly all of its cases, while where no active work is undertaken the number of cases will represent the physicians' reports only.

The largest number of reports of cases unattended by physicians will be obtained by the public health nurse. Such an officer, in investigating absences from school due to illness, will pick up most of the cases in children of school age. If the school teachers are properly instructed in reporting all illness they will sometimes note cases even before they are seen by the nurse. The teacher need not be a diagnostician, but she should know enough to exclude from the classroom and hold for observation every child having any symptoms whatsoever. By this is meant even the "common cold" which in many places is permitted to run along unnoticed.

The getting of reports of cases among children of the pre-school age unattended by physicians presents the greatest difficulty. These reports are particularly important because children of this age are not under constant observation as are children in school. Clues and hints as to cases will come from neighbors, children in school, and others. Each such report must be investigated, no matter how unpleasant the task may be. A single missed case may do untold harm. The subject of reporting must not be concluded without stating that there are many parents who report promptly themselves. By proper education this group can be enlarged and the health officer's work made correspondingly easier.

Having received the report of a case, the responsibility then rests with the health officer. Here, again, speed is required. The investigation must be commenced at once, not on the next day or on Monday. Every case, whether real or suspected, should be investigated. It is not enough simply to make a record for the office and perhaps placard the premises. Before commencing the investigation the officer should be equipped with cards or other suitable means for recording the results obtained.

In making the investigation the house or premises should be visited, a list made of all persons in it, together with their occupations and whether or not they may be immune to the disease. All persons who have been in contact with the case since the commencement of illness should be listed. As much information as possible bearing on the case should be obtained and recorded. Inquiry as to the probable source and the whereabouts of the patient on the date that the infection was probably acquired should be obtained. The determination of the source, if possible, is important and sometimes constitutes an interesting piece of detective work. Sometimes the source will only be determined after a number of cases have been investigated and the data obtained tabulated and studied.

Where there are many cases and careful and complete records made of each one, the outbreak can usually be diagrammed and studied, information often being obtained that will be of use should another similar outbreak occur.

Laws will usually govern the control proceedings. However, laws alone will not control or prevent diseases. The personal element is exceedingly important and a good health officer will accomplish more with poor and insufficient laws than will a poor officer with the best laws and regulations in the world. The best regulations for the control of communicable diseases are those that accomplish the prevention of spread of the infected material with the smallest amount of interference with the regular routine of the family affected. Modern regulations have this tendency and therefore receive better support from the public. The main burden will fall on the household where the case exists, provided it is not taken to a hospital. Control must not stop here, however. Every contact or exposure must be watched until the maximum period of incubation has passed. Where the exposure has been limited to a certain day and is definitely known, the restraint placed upon the contact may safely be limited to a few days covering the period when the disease is expected to appear.

In this, the last step, speed is not so necessary, although there is no reason for restricting the case after the period of infectivity has passed. The determination of the proper time for release will differ with the several diseases and need not be discussed here. The principle is the same for all, i.e., when the danger of spreading the infected discharges has passed, release them. Contacts who pass over the maximum period of incubation without developing the disease should of course be released without further ceremony. Cases should never be returned to school without a written permit from the health officer. A good plan is to require all school absences of more than a day or two to have such a permit before returning. This usually removes the last opportunity of concealing a case in a school child.

The question about fumigation may be asked. The answer is, disinfect, but do not fumigate. Nothing more need be said about disinfection than that it should be carried on concurrently with the course of the disease, and at its termination should consist of a good, honest, mechanical cleansing of the infected area. About the only time to fumigate is in the case where the householder thinks this method is the last word in perfection and where you see that it is useless to try to change his mind. After he has fumigated to his heart's content insist on a final cleansing and scrubbing.

In general it may be stated that marked success has attended the efforts of health workers in controlling diseases where some one discovery was all that was needed. The same success has not been had with those diseases that for the present can only be controlled by painstaking attention to detail. The whole plan for control is dependent upon speed with quick and thorough action.

Chlorination Prior to Filtration

The water supply of the city of Toronto is filtered by means of slow sand and drifting sand systems at a plant situated on an island at a distance of two miles from the city. From the island the water flows by gravity to a point one mile north; drops down a vertical steel shaft to a tunnel 90 feet under Toronto Bay, and flows by gravity to the city where chlorination is effected before distribution. The unusual location of the plant and the possibility of leakage between the works and the city are the reasons for not chlorinating immediately after filtration.

The plant was designed to operate with alum applied at the rate of 1 grain per gallon. Increased pollution of the water made it necessary to increase this amount to as much as 2.5 grains per gallon in order to secure a satisfactory effluent. The cost of treating from 35,000,000 to 50,000,000 gallons per day by this method involved an enormous expense and at the same time the increased dosage of alum cut down the capacity of the plant. It was found during the summer months that chlorination before filtration when applied in amounts up to 1.5 grains per gallon, was more effective than alumina sulphate in reducing the bacterial content. In the winter months alum compared more favorably with the chlorin.

The only objection raised to a double treatment with chlorin was that it would accentuate the taste in the water that appeared at certain times of the year, particularly when easterly winds prevailed. For a time chlorin and alum were used alternately depending on the prevailing physical and meteorological conditions. Later chlorin was applied continuously.

Before this time the capacity of the plant was seriously taxed during the summer months but with the use of chlorin the rate of filtration was increased from 150,000,000 to 175,000,000 imperial gallons per acre per day.

The percentage reduction of bacteria growing on agar at 37 to 38 degrees centigrade with 24 hours incubation was, including all the results of the year, 95.2. When alum alone was used the reduction was 93.6 per cent, and when chlorin alone was used the figure was 96.3.

The figures for reduction in excremental bacteria grown on bile-salt agar with the same incubation were 93.8, 91.1, and 96.9, respectively. The indicated number of *B. coli* were reduced 99.8, 99.6, and 99.9 respectively. Whatever the method of bacterial count the figures consistently show that the chlorin treatment produces better results. Happily this is also accomplished at less cost. In 1920, 1219.26 tons of alum were used at a cost of $60,963.00. In 1921, when alum and chlorin were used alternately, the former cost $18,155.00 (363.1 tons), and the latter $2,343.37 (9.373 tons). Although additional labor was necessary under the latter method which amounted to $5,975.32 a saving of $34,489 was effected.

This interesting means of obtaining purer water at less cost and at the same time increasing the capacity of the filtration plant is reported at some length by Norman J. Howard in *The Journal of the American Water Works Association*, July, 1922.

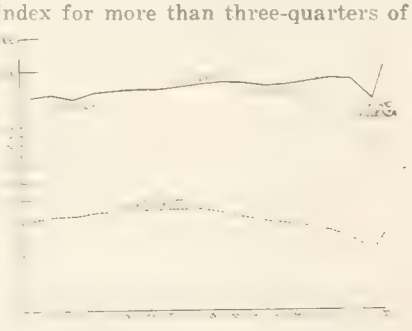
A census of typhoid carriers has been taken during the past twelve months by the bureau of preventable diseases of the New York City department of health with the following findings: Forty-four chronic carriers in Manhattan, 10 in the Bronx, 34 in Brooklyn, 14 in Queens, and 4 in Richmond. A definite set of rules was also formulated and made public for the regulation and supervision of these health menaces. The rules warn against the handling of food, and urge the carriers to practice scrupulous personal cleanliness, to use individual plates, towels, etc., and separately washed, and to keep in touch with the department. Members of the family and close associates of the carrier are urged to take immunization treatment.

Vital Index of England

AN interesting study from the Department of Biometry and Vital Statistics Johns Hopkins University, on "The Vital Index of the Population of England and Wales" appeared in the proceedings of the National Academy of Sciences, April, 1922. Using the term vital index to indicate the ratio births per 100 deaths in a population, Raymond Pearl and Magdalen H. Burger have analyzed the biological fitness of England and Wales from 1828 to 1920. By means of this demographic function if the vital index is greater than one hundred the population is not only surviving but growing, whereas if less than one hundred the population is starting on the road to elimination.

The data have been computed for each quarter of the eighty-three years covered by the study but the accompanying figure, plotted on an arithlog grid, tells the whole story at a glance.

The steady increase of the vital index for more than three-quarters of a century shows that the population of England and Wales has more than reproduced itself. Influenza and war have been the only influences sufficiently powerful to effect the slow but steady rise in the vital index. Perhaps the most striking feature of all is the rapid return to normal or nearly normal that followed the war and the recent influenza epidemic. The gloomy view that the trend of British people was biologically downward had its foundation solely on the fact that since the quinquennium 1875-1880, the birth rate in England and Wales has been falling rather rapidly.



Trend of vital index (100 births deaths) and crude birth rate in England and Wales, 1838–1920, inclusive.

From a purely biological point of view the writers ask: "What matters a falling birth rate if the death rate falls even more rapidly, so that the net survivorship at any instant of time is constantly getting higher?" It is realized that it will be answered that nowadays the "best" people do not produce their due share of progeny, while the "worst" people overproduce, but the social and eugenic aspects of the problem are not capable of measurement by this means. It is a debatable question whether old Dame Nature is interested in any test of "best" and "worst" except survival, though Pearl has previously shown that the vital index of the American negro is generally less than one hundred. The interest of this study is purely biological and is remarkable in the extraordinary perfection, demonstrated in the figures, of the self-regulation of population growth.

Digest of Sanitary and Hygienic Advance

THE administration of iodids in food in goitrous regions has received recent consideration. Lack of iodids being a food deficiency, Hirschfelder (*J.A.M.A.*, Oct. 21, 1922) advocates, as the simplest and easiest method of supplying the deficiency, the use of iodized salt. The procedure suggested is as follows: First a stock of iodized salt is prepared by spraying or sprinkling one pound of ordinary salt, spread in a large tray, with 50 c.c. of 10 per cent solution of potassium iodid in 60 per cent alcohol. After securing as even a distribution as possible, the salt is well stirred, slowly dryed by evaporation over a water bath or on the top of an oven, and ground in a mortar or crushed with a large spoon. This stock may be used for iodizing all the salt used or for the salt used on the table only. In the former case five pounds of salt are spread on a large surface and five tablespoonfuls of the stock iodized salt sprinkled over it by means of a shaker and the whole thoroughly mixed. In the latter case, on the assumption that from one-fourth to one-third of the salt ingested comes from the table shakers, the table salt should contain four times as much. Such a mixture can be secured by adding two tablespoonfuls of the iodized stock to each pound (two large cupfuls), or half a tumblerful to a five pound sack.

De Quervain *Schweiz. med. Wehnche.*, Aug. 31, 1922) also advocates the use of iodized salt by prospective mothers as a preventive of congenital goiter, but cautions against its indiscriminate use by children approaching the age of puberty. Bircher (*Ibid.*) urges the need of scientific control of the administration of iodin, stating that any exaggeration in the basal metabolism forbids its use.

The Hazard from Consumptives

Gloyne (*Tubercle*, Aug. 1922, p. 497) has attempted to answer the following questions: (1) Are virulent tubercle bacilli commonly present in the mouths of patients suffering from pulmonary tuberculosis? (2) If so, can these organisms be transferred to table utensils? (3) Does the washing of these utensils destroy the bacilli?

The mouths of twenty patients, ten having much sputum and ten having scanty suptum, were washed with 40-50 c.c. of sterile water plus 0.5 per cent antiformin to destroy the secondary organisms. The centrifugalized deposits were innoculated into guinea pigs. Of the ten cases with much sputum eight gave positive results and of the ten cases with scanty sputum two were positive. Similar tests relative to the spoons used by the patients were entirely negative in the group with scanty sputum and 60 per cent positive in the group with much sputum. No infective material was found on other utensils and the ward cooking was negative. Gloyne concludes from this that patients with profuse sputum are the more infective and that plain water is a satisfactory sterilizing agent for tuberculosis hospitals.

Diagnostic Test for Pertussis

In a preliminary report (*J.A.M.A.*, Oct. 28, 1922) there is much promise of a valuable method for the diagnosis of whooping cough during the incubation period and the catarrhal stage. Oregel reports the use of a vaccine of *Bacillus pertussis* containing two billion bacilli per cubic centimeter. Two minims of this vaccine were injected intradermally into one forearm of the patient to be tested and two minims of steril saline solution in the other forearm to act as a control. Positive reactions usually appear as slightly raised, coppery red, circular areas at the site of injection. This area appears about the third hour, increases in size up to the sixth, and from then on a gradual recession of the erythema takes place leaving a slight area of induration which lasts about a week.

The reddened areas vary in size from 5 to 25 millimeters; those under 5 millimeters in diameter being considered negative. The groups used were small but carefully controlled and the results strongly indicate an accurate and valuable test.

Diagnostic Value of the Sachs-Georgi Test

The results of parallel Sachs-Georgi and Wassermann reactions on 1,748 specimens of blood serum have shown a total agreement in only 85.5 per cent of the tests. Of the positive Wassermanns, 33.3 per cent were missed by the Sachs-Georgi test and 26.5 per cent of the positive Sachs-Georgi reactions were not confirmed by Wassermann tests or clinical findings. These finding are reported by Craig and Williams (*J.A.M.A.*, Nov. 4, 1922). The Sachs-Georgi reactions were read by one of the authors and the Wassermann reactions by the other, thus obviating any unconscious, erroneous correlation in the doubtful reactions. The authors conclude that the Sachs-Georgi test cannot be relied on alone. Kilduffe (*J. Am. Med. Sci.*, Oct., 1922) reports a similar study of 430 tests combined with a previously reported one of 296, stating that non-specific reactions in the Sachs-Georgi test make it unreliable.

Fallacy of Yeast Therapy in Infant Feeding

Because yeast can be successfully substituted for part of the protein requirement of an adult, is non-toxic, will apparently improve skin diseases in adults, cure polyneuritis in pigeons, and cause rats on an inadequate diet to gain in weight, numerous claims have been made that yeast in various forms is a panacea for all the ills of man and that even infants would be improved by a tablet or two a day.

Davison states (*Am. J. Dis. Chid.*, Oct., 1922) that this conclusion is falsely derived from unapplicable premises and is not proved by the elementary rules of logic, but, furthermore, experiments have shown that, when applied to infants, yeast therapy is not only without benefit but may actually do harm. The author reports a small series of cases from which he concludes, in substantiation of the previous statements, that the administration of yeast to patients convalescent from acute intestinal indigestion (6 patients), to infants suffering from chronic intestinal indigestion (3 patients), and to a physically retarded child (1 patient), is without benefit and may possibly do harm.

Food Requirements of Children

Holt and Fales (*Am. J. Dis. Child., Oct., 1922*) find from theoretical consideration and from practical observation that a diet in which the fat supplies 35 per cent of the total calories, the protein 15 per cent, and the carbohydrate 50 per cent, is the one which meets the nutritional needs of the child after infancy. It is one which is well borne by the digestive system, and may be considered a well-balanced ration. The observations were made on a series of 106 children between the ages of one and ten.

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Constructive Health Work of the Academy of Medicine

THE Public Health Committee of the New York Academy of Medicine has now been functioning for twelve years and has acquired a definite and somewhat unique position of usefulness. Some of the specific things that it has done during these years are described in this issue of The NATION'S HEALTH but the character of the work is such that it deserves a very special emphasis.

The Public Health Committee of the New York Academy, Dr. C. L. Dana, Chairman, is composed of a group of physicians who have had large experience in the practice of medicine, in hospital work, in teaching institutions, and in libraries. They are equipped, therefore, to look at problems of public health from a somewhat different point of view to that of those who are actively engaged in administrative or practical field work. Their interests incline them often to study problems not directly concerned with preventive medicine, such as legislative procedures, hospital and dispensary organization, medical education, nursing, social problems, and those city budgets which bear on hospital administration and public health. They have been able to conduct special studies along some of these lines and to evaluate and standardize various types of hospital, dispensary, and public health work. None of the members of the Committee is connected officially with any of the branches of the city or state government, and this fact gives to their opinions value as those of an independent and unbiased body. In all important matters also, the Committee's opinions, with certain restrictions, are the opinions of the Academy of Medicine, and this fact gives greatly added weight. The plan of thus organizing and standardizing the experience and expert knowledge of a group of medical men in connection with the Academy of Medicine has appealed to people interested in public health and the Committee has received very generous financial support. They have been able to make large yearly budgets and to direct the expenditures of large sums in addition, in studying special problems.

Finally, the activities of the Committee are altogether impersonal: it is the Committee and the Academy of Medicine which are exploited not the individual. This fact makes it possible to give full publicity to the work without causing offense or arousing criticism.

There is no reason why similar methods of organization and work should not be adopted in connection especially with the large incorporated

medical organizations of the country. An essential thing in making these committees effective, however, is that they have sufficient money to pay for secretarial and executive work.

The Cleveland Hospital and Health Survey; Two Years After

HOW rare it is to find a patient so considerate and interested in the impersonal aspects of his disorders as to take the pains to continue the physician's analysis and actually to record the changes produced by time and treatment so that others may receive benefit from the accumulated experience. But this is essentially what that thoughtful and alert community patient, the city of Cleveland, has done in handing us a neat postscript or supplement to the history, physical examination, diagnosis, prognosis and suggested self-treatment which were indulged in on the initiative and with the broad ideals of the Cleveland Hospital Council.

This is by no means an autopsy, nor yet the final estimate of disability on discharge, for the patient is still under treatment and in a fair way to make continued progress.

The Cleveland Welfare Federation accepted the suggestion of the survey of 1919 and made provision for the health elements in its community program by engaging a physician to be responsible for the preventive medical phases which form so important a part in most social, relief and educational measures supported by the voluntary taxation of the annual "drive." In this way the patient is assured a competent professionally trained observer and critic to supplement, so far as funds permit, the official and public services of the commissioner of health.

A great merit of this supplementary diagnosis is the frankness with which the patient calls attention to the errors of judgment and opinion and in some instances to misinterpretation of facts by the original surveyors.

Without engaging in the tempting game of concentrating a summary we can pick out some notable points which, by further reading in the original text, will develop value to any urban community.

> In our opinion it (The Hospital and Health Survey) not only has paid for itself many times over in dollars and cents, but also in increased human values; and, as the years roll by and further steps are taken along the lines suggested, even greater results will be recorded in added days of life, work and happiness.
>
> The Survey helped greatly to lift us out of the rut of things and show us the fair land.

And this from a patient who paid $53,000 plus for a medical opinion. Really not a great extravagance when figured at seven cents apiece for the entire city family.

Here and there, as in the field of tuberculosis and venereal diseases, stagnation, or at least no progress, is recorded. Cleveland still has confidence in relief from its serious financial limitations and other insufficiencies and inadequacies of laws, through other interests than those dedicated solely to welfare and public health objectives, though the survey urged the necessity of enlisting public spirited lawyers and those in public office to take the initiative in a program for improvement of laws.

Some of the predictions or warnings have come true and we see Cleveland now at the moment of opening its new, generous City Hospital facilities for the indigent sick still at the mercy of partisan politics in the matter of its public hospital administration. With such brilliant examples of high grade hospital organization and the most liberal vision of the social function of hospitals for prevention and treatment as are found in Mount Sinai and Lakeside Hospitals at present, the inadequate direction of the city hospital stands out with especial clearness.

Lack of public funds and an entirely rational determination to maintain a proper sense of proportion among the projects of the many needy groups of the Welfare Federation has prevented completion of some of the desirable projects urged by the health survey.

Many improvements of the greatest importance have been accomplished by the health commissioner within the scope of his office, but he still lacks funds for health education and without this he is, in large measure, tongue-tied. In control of communicable diseases and in vital statistics radical gains have been made in organization and service.

Also in the division of medical inspection of the Board of Education advances in thoroughness of technic, in extent of service and in attention to ventilation and sanitation of schools show a fine record.

Among the volunteer health agencies the most remarkable record is presented by the Association for the Crippled and Disabled. Centralization of direction has been emphasized and a program of great completeness has been carried out.

In the field of education in medicine and associated professions, the nurses and pharmacists have carried off the palm for increase in facilities for theoretical and practical training under university auspices. Perhaps in the not too distant future even medical students may have as good facilities for the study of health in the process of destruction, and disease in the making, as are now offered to nurses through supervised field experience in homes.

The medical profession, the hospitals and their stepchildren, the dispensaries, are shown in the process of readjustment to their new obligations to society. Their reaction to the Survey study had been quick, effective, and liberal, and it is not too much to say that the dispensary committees of the Cleveland Academy of Medicine and of the Cleveland Hospital Council have taken positions and assumed leadership in medical service policies which deserve the highest praise from their colleagues and the community as a whole.

The lesson to be learned from "Two Years After" is definite and compelling—that a diagnosis and a plan of action are desirable, present true economy, and insure definite progress when dealing with a community as with an individual patient.

We congratulate Cleveland on its follow-up as upon the initiative of its Hospital Council in the original project and publication.

Health Insurance Versus Health Centers

A RECENT book by Gerald Morgan[1] entitled "Public Relief of Sickness" should be read by all who are interested in the complex problem with which it deals. The author reviews the conclusions of the Illinois Health Insurance Commission which show very clearly that there is a considerable group of families with meager incomes who suffer severely for lack of medical treatment and for lack of a financial reserve sufficient to tide over periods of disability; and which show with equal clearness that none of the present methods of voluntary insurance in force in the United States is competent to meet this need. The results of state-aided voluntary insurance in Denmark and of compulsory state insurance in Germany and England are discussed in detail and with unusual balance and discretion. The Danish system is ineffective from the standpoint of cash benefits and both the German and English systems, while more successful in relieving the financial burden, are wholly inadequate from the standpoint of medical relief except perhaps in a few local instances such as that offered by the city of Leipzig. The author then proceeds to the fundamental thesis of the book, which is that financial relief and medical relief should be divorced and treated on a separate and independent basis. Where the attempt is made to furnish medical relief through an insurance scheme the contributors have proved unwilling to meet the cost, which necessarily advances by leaps and bounds with the progress of medical science, and "insurance medical practice obliged doctors to make strict contracts, or bargains, for their services, to a certain part of the community, thus emphasizing the commercial side of medical practice to its professional detriment, which in turn, reacted upon the adequacy of the treatment actually accorded to patients."

The author then proceeds to analyze the sickness insurance plan presented by the New York senate in 1919 but defeated in the assembly and concludes that if the element of medical relief were eliminated a scheme of this type should prove adequate and satisfactory for an equitable distribution of the financial burden of sickness. He makes the admirable suggestion that the proportion of the cost of such a sickness insurance scheme to be borne by the employee should be fixed, while that borne by the employer should be flexible according to the actual incidence of sickness in a given industry—a plan which would prove a powerful stimulant to the development of industrial hygiene.

For the solution of the problem of medical relief the most promising plan yet proposed appears to be the health center bill, introduced in the New York Legislature in 1920 and 1921, which separates medical relief entirely from cash insurance and works on the principle that adequate medical treatment should be provided not merely to the wage earning class, while actually in employment, but at all times and to the entire public. The essential elements embodied in the New York Health Center Act were the provisions of adequate medical treatment at all times to all in need of it irrespective of their means, involving whatever extension of hospital and dispensary facilities would be necessary and the staffing of such hospitals and dispensaries by paid physicians. This end was to be attained on the voluntary initiative of local authorities but stimulated by state aid. Laboratory service and public health nursing service are also included in the plan but home visits by physicians such as is included in the work of the dispensaries at Zurich, Switzerland, is not provided for.

The whole question of so reorganizing the medical profession as to meet community needs is so complex that its solution must no doubt be sought along many different lines and to meet many local conditions. That such constructive action is essential will probably be granted by all dispassionate students of the subject, particularly for the sake of meeting the urgent needs of the rural districts. Whatever steps are taken, however, must be, on the one hand, such as to insure that public support which will provide the necessary

1. Morgan, Gerald: Public Relief of Sickness. The Macmillan Company, New York, 1922.

funds, and in the second place to safeguard the standards of medical practice. It seems probable that both these ends are more likely to be obtained through the expansion of the health center idea than by a plan of health insurance which includes medical relief, and Mr. Morgan's book should prove an important factor in clarifying the thought of the medical profession and the public in regard to this vital question.

Potential Economies in Plumbing and Ventilation Practice

IT IS wise to take every precaution which is of demonstrable and substantial value for the protection of the public health, and every year new lines of possible activity develop which promise a return in life and health far in excess of their financial cost. On the other hand there are many sanitary practices now current which rest upon pre-scientific prejudices rather than exact knowledge, and as our science progresses it is the duty of the public health worker to see that economies should be made wherever such practises are shown to be unjustified. Two substantial advances along this line are chronicled in the present issue of THE NATION'S HEALTH.

The report which has been circulated in tentative form by the sub-committee on plumbing of the Department of Commerce building code committee crystallizes the well established opinion that most of the municipal plumbing regulations now in force are quite unnecessarily severe and impose an unwarranted burden upon every one who builds a home. The substitution of vents for groups of plumbing fixtures instead of vents for individual traps is clearly indicated by all recent studies of this problem, and the recognition of this fact in our plumbing codes should prove a substantial stimulus to the building of small homes, so much needed in most large cities.

Of equal importance are the findings of the New York State Commission on Ventilation in regard to the possibility of ventilating school buildings by the use of window inlets with gravity exhaust ducts involving a substantial reduction in the volume of air supply with consequent decrease in heating costs as well as markedly lower costs for first construction. The system of gravity ventilation was used with marked success during the nineteenth century by Tredgold and Reid in England and by Billings in this country, but between 1890 and 1910 there was a rapid substitution of fan ventilation, stimulated by the belief that large volumes of air were essential for the dilution of hypothetical toxic substances in the expired air. By 1917 twelve states[1] had laws or state regulations requiring the supply of about 30 cubic feet of air per minute per pupil in schoolrooms, while two other states[2] had regulations which were only slightly less severe. The New York studies show that an exaggerated air flow is not only needless but positively harmful, since it involves a corresponding increase in air temperature, and it is hoped that vigorous steps will be taken to secure the modification of these misguided laws.

It is impossible to make any exact estimate of the money which can be saved to the house owner and the tax payer by the application of the principles laid down in these two reports; but taking the country over it must certainly run up into millions of dollars per annum.

[1] Indiana, Louisiana, Maine, Massachusetts, Minnesota, Montana, New Jersey, New York, North Dakota, Pennsylvania, Utah, Virginia

[2] Illinois and Ohio, requiring six changes of air per hour.

Gaps in Our Knowledge of Epidemic Poliomyelitis

THE conclusions of Wickman,[1] Kling, Peterson and Wernstedt[2], Flexner[3], and Emerson[4], that epidemic poliomyelitis is primarily a contact-borne disease spread by the discharges from the nose and throat, has received fairly general acceptance in this country since 1916. The occurrence of sporadic cases without known contact and the failure of the control measures applied in 1916 have been explained on the assumption that well carriers play a predominant part in the dissemination of infection.

In view of the increase in poliomyelitis reported this fall from certain localities it is interesting to observe that at least one student of this disease, William Browning, has recently challenged some of our most cherished preconceptions in regard to it. Dr. Browning[5] maintains that the clearly demonstrated presence of the virus of poliomyelitis in the upper respiratory tract is no proof that this is their normal point of egress and ingress. He cites, on the other hand three facts, (a) the sporadic occurrence of the disease, with rare evidence of direct contact, (b) the seasonal prevalence of the disease, and (c) the prodromal gastro-intestinal symptoms, as evidence in favor of the alimentary tract as the primary portal of infection. The sporadic occurrence may be explained, as noted, by widespread vital resistance and a large number of carrier cases. We confess, however, that the fact that poliomyelitis

[1] Wickman, I. Deutsche Zeitschrift für Nervenheilkunde, 1907.

[2] Kling, C., Petersson, A. and Wernstedt, W. Report of the Commission of Medical Inspection of Schools in the N. Y. Department of Health and Proceedings of Workshop, 1911.

[3] Flexner, S. Journal Exper. Med., 1916, XII.

[4] Flexner, S., and Amoss, H. L. Journ. Exper. Med., 1916, XX, 439.

[5] Emerson, H. A. Proceedings of the Conference of Health Officers of New York City, 1917.

[6] Browning, W. Long Island Medical Journal, XVI, August, 1922.

is so predominantly a disease of warm weather and of dry seasons as shown by Hull[6] has always appeared profoundly puzzling. It seems to offer convincing evidence that some factor is at work in this case which does not operate in any of the contact-borne respiratory diseases. The stubborn exception which fails to fit in with our theories is likely to be most fruitful in the advance of knowledge. If we knew why poliomyelitis occurs chiefly in the summer time the possibilities of control might be substantially improved. Meanwhile with our present ignorance we shall do well to accept Dr. Browning's "shot-gun" advice to parents.

(1) Do not have the child travel, or not beyond the ordinary rounds. Home life favors the preventive program. (2) Have the child avoid all food and drink except at home. (3) Give only freshly cooked food—even milk and water to be sterilized. (4) Avoid all raw fruit. (5) Do not let the child fondle pets. (6) Protect both the child and its food from all insects and vermin. (7) Keep the child from kissing, fondling, and hand-shaking. (8) Prevent all bathing and swimming in polluted water. (9) Observe general cleanliness and care of the laundry, with avoidance of public drinking cups and like utensils. (10) In case of the least digestive disturbance have it attended to immediately. The writer admits that some of these rules may not be necessary but they involve no serious hardship and are intended to cover all possible sources of infection.

Some Anatomical Factors in the Etiology of Tuberculosis

THE terms "resistance" and "susceptibility" serve in too many instances as convenient cloaks for profound ignorance. A multiplicity of factors, chemical, physical and anatomical, local and systemic, play a part in the skirmishes which terminate either in a lodgement of invading bacteria within the tissues or in their failure to so establish themselves. It is peculiarly refreshing to find evidence of the actual nature of some of these factors and of their relative importance in a given case.

A suggestive contribution to this problem in the case of tuberculosis comes from Dr. A. K. Krause's laboratory[1]. The studies in question were initiated by the observation that in guinea pigs inoculated in the groin with tubercle baccilli of low virulence there were two centers that bore the brunt of the infection; the inguinal and retroperitoneal lymph nodes and the tracheobronchial nodes. It was not easy to explain why the infection jumped to the tracheobronchials without leaving its marks between. Subsequent studies showed that from four to twenty-six days after infection in the groin, guinea pigs had received and retained more bacilli in the tracheobronchial lymph nodes than in the lungs. Following involvement of the lymph nodes tubercles appeared first in the spleen, which became highly tuberculous before the lungs showed any infection. In view of the fact that there is not, as some authors have assumed, any direct lymphatic connection from retroperitoneal lymph nodes to either spleen or tracheobronchial nodes, it must be assumed, until positive evidence to the contrary is brought forward, that the course of the bacilli was through the dorsal lymphatic trunk to veins, at the junction of internal and external jugulars, and thence through right heart and pulmonary artery to the lungs where some bacilli are embolized in capillaries of venules, thence out of the smaller blood vessels and into the lymphatic system of the lung and back to the tracheobronchial nodes.

The distribution of infection in rabbits was found to be almost an exact reversal of that found in guinea pigs. In the former there was marked involvement of the lungs with little or no gross change in the spleen, and even though pulmonary tuberculosis was extreme there was slight or moderate infection of the tracheobronchial nodes.

The bronchial artery, which in the guinea pig supplies all lymphoid tissue within the lung, arises not, as in other mammals, from the dorsal aorta or the intercostal, but from the right subclavial artery, while in the rabbit it is the pulmonary and not the bronchial artery that carries blood to this tissue. These facts, worked out by Miller[2], and Willis[3], respectively, show the need of more detailed study of the animals used in laboratories for experimental purposes. In this case it gives at once a reason why an infection brought to the lungs from the periphery, by way of lymphatic system and veins, should eventuate differently in rabbits than in guinea pigs.

Anatomical studies of the lung tissues corroborated facts that have previously been recorded but had received little attention; that throughout the lungs of rabbits there are innumerable masses of lymphoid tissue; and that this condition is not found in any appreciable degree in the guinea pig.

In the rabbit these masses of intrapulmonary lymphatic tissue tend to interrupt the passage of bacteria from the lung to the lung nodes and to confine infection to the lung itself. In the guinea pig with a more "open" lung little obstruction is offered to the passage of bacilli till they reach the tracheobronchial nodes. An additional factor favoring pulmonary infection in the rabbit is that the pulmonary artery supplies the lymphoid masses in the lungs, thus carrying directly to

6. Hull, T. G. American Journal of Public Health, 1917, VII, 813.

1. Krause, A. K. 1922. Experimental Studies on Tuberculous Infection. Amer. Rev. Tub., VI, March, 1922.

2. Miller, W. S. 1919. Studies on Tuberculous Infection. Amer. Rev. Tub., III, 449.

3. Willis, H. S. 1919. Studies on Tuberculous Infection. Amer Rev. Tub., III, 453.

them the bacteria that have converged from the periphery of the body to the venous trunks.

The significance of this whole study is shown by the questions raised by Dr. Krause. "Does human tuberculosis infection normally tend to the lung root in early life because then lymphatic drainage is more active and intrapulmonary channels more open and unobstructed than later. In other words, is the child's lung more comparable to that of the guinea pig, which may be looked upon as constituting one type?

"With increasing age, do human lungs undergo internal changes which bring them nearer to the type which is normal for rabbits? Does there normally occur an increase and development of intropulmonary lymphoid tissue, over a few years or through many years? Do formerly open lymphatic paths thus become more or less obstructed, so that bacillary retention within the lung is favored? How much do the inhalation of foreign bodies and the repeated occurrence of respiratory infections alter puerile lymphatic structure which was once normal?"

The Drift of Population From Rural to Urban Communities

DEMOGRAPHERS found, as the results of the last census became available, that the condition they had anticipated had become a reality. More than half of the population of the United States now resides in urban communities, which the Bureau of the Census defines as cities or incorporated places having a population of 2,500 or more.

The District of Columbia, being coextensive with the city of Washington, naturally leads the list of major divisions with an urban percentage of 100. Rhode Island is credited with 97.5, while Massachusetts (94.8), New York (82.7) and New Jersey (78.4) all show percentages over 75. At the other end of the scale are nine states with an urban population including less than 25 per cent of the total number of inhabitants for the state. The lowest percentage, 13.4, is credited to Mississippi.

During the last two decades Arizona and Idaho have doubled, Oklahoma has tripled, and Idaho has quadrupled the percentage of urban population. Colorado, Montana, and Wyoming have experienced a diminution of urban population percentage during the last decade and the two first mentioned show a smaller per cent of urban population in 1920 than they did in 1900.

The urban population percentage of the United States as a whole has grown steadily. In 1890 it was 35.4 per cent; in 1900, 40.0 per cent; in 1910, 45.8; and in 1920, 51.4 per cent.[1]

The rural communities have lost their majority. The "back to the farm" movement seems to have had no appreciable influence on the trend toward urbanization. From the time of Malthus up to the present day, philosophers and scientists have studied the problem of the future food supply of the world. From a mathematical point of view it is not difficult to conceive of a time when, if the present movement to the cities continues, the increased production from scientific farming will not be sufficient to outweigh the loss in the ranks of the agriculturists. It is not assumed that the force of urbanization affects solely the group following agricultural pursuits but it cannot be without its effect. A closely related fact, significant in this connection, is that before the census of 1910 there had been a steady decline[2] in the percentage of those gainfully employed in "agricultural pursuits." With the census of 1910 the new classification of "agriculture, forestry, and animal husbandry" was introduced. The last census permits a comparison on this basis which shows that not only has there been a reduction in the per cent of the total population so employed (approximately 3.5 less in 1920 than in 1910) but also that the actual number so employed has been reduced by nearly one and three-quarter millions.

The problem is so complex that few dare to state the cause or the probable finale. To the men that the political spell-binder calls the backbone of the nation, "toil's bright dew-drop" seems to have lost its charm.

1. Statistical Abstract of the United States, 1921.
2. Thirteenth Census of the United States, v.iv.

Psychologic Factors Determine Success in Group Feeding

ACCESSORY food factors is a phrase which has come to have a definite chemical significance in nutrition studies. There are other "accessory food factors," not of a chemical nature, which, especially in problems of group feeding, are equally important. These other food factors, even less tangible and less definite but no less fascinating or interesting than the chemical ones, are mainly psychological, racial, and environmental factors which must be understood before successful group feeding is possible.

Any attempt at teaching the elements of nutrition to a group will fail unless the teacher starts where the group leaves off; that is; the teacher must understand the standards of the group before such standards can be changed. Hopeless chaos results from attempting group instruction

of mothers and housewives of different nationalities and different environment; the Jewish housewife can not be shifted from a "Kosher" basis. The Italians will have difficulty in changing from their accustomed liberality of farinaceous foods. If corrections are necessary, they cannot be put over from a textbook; and they can only have meaning when based on the idiosyncrasies of the individual groups. For the study of these peculiarities, training is necessary in much more than the science of nutrition. In historical perspective and appreciation of the development of habits of cooking and eating, knowledge of economic possibilities and limitations, understanding of environmental influences, and, finally, a psychological insight into the particular present-day family life of the group under study, must be considered part of the necessary equipment for study. Pernicious dietary habits may usually be traced to individual and collective mental set rather than to wilful perversion, and the remedy lies in a full understanding of the patient.

These ideas received their stimulus from perusal of an unpublished report of some recent nutritional studies in Chicago. A fund was available for the purpose of supplementing the income of families containing undernourished children. The work was carefully done under the supervision of trained case workers, medical agencies, and dietitians, and after two years an inventory of the experiment was recorded. In this particular study only one large immigrant group was included, so that many of the larger factors mentioned did not come up for consideration. Yet the surprising and striking feature of the whole study was the tremendous effect of psychological factors on the simple physiology of nutrition. A given family received money enough to allow all its undernourished members to gain. The children did not gain. The next family under apparently identical conditions, showed better than an average. Such marked differences were difficult to interpret. Closer analysis disclosed in the first instance a father with an "inferiority complex" standing unconsciously in the way of his children's better health. The second family were of better stock, perhaps temporarily down; the father and mother were intelligent and receptive. Each family under observation proved that there's many an unseen, unchartered obstacle between the food and the feeder, and emphasized the deductions we have drawn. We are of the opinion that just as the psychological stimulation of digestive juices plays an important rôle in the nutrition of the individual, so psychological—and other elements—are highly important factors in the nutrition of groups.

The Medical Certificate of Death

EACH year the director of the United States Bureau of the Census introduces into his report an admission that the country as a whole has very incomplete records. While the Registration Area now accounts for 81.1 per cent of the population, there are still fourteen states with such incomplete death registration that the Federal statisticians do not consider their certificates worthy of recording.

The unreliability of statistics of causes of death as concerning all classes of citizens is fully discused in a recent issue of the *Journal* of the American Medical Association by Erik G. Hakansson, Lieutenant, of the U. S. Navy Medical Corps, who argues that the confusion resulting from the use of physicians of vague and incomplete statements placed 15,505 deaths under "ill defined" diseases in 1920. He reports fully on a system of death registration giving one hundred per cent satisfactory medical certificates as being in use in St. Thomas, Virgin Islands, and which he considers to be perfectly applicable to the United States as a whole.

The cooperation of the medical profession is the first essential in achieving reliable statistics. If the facts are not discoverable from official records, what precision can attach to preventive methods? Ambiguity of terms and clear thinking are incompatible, and the medical certificate should command its share of attention, for emphasis in health work find its guide in statistical interpretation.

Beginning Soon Enough

DR. CHARLES J. HASTINGS told a story at the A. P. H. A. meeting in Cleveland which illustrates the spirit in which he has built up the Toronto Health Department to a point perhaps unexcelled upon this continent. The gateman at a railroad station is commiserating with a would-be passenger who returns, puffing and panting, from the unsuccessful pursuit of a departing train. "You didn't run quite fast enough," he says. "Yes I ran fast enough" is the reply, "but I didn't start soon enough."

The control of infant mortality demands the care of the expectant mother. The control of diphtheria depends upon immunization before the school-age. The mental hygienists tell us that the most important steps in the architecture of the mind are taken before the age of six. The *pre*-tuberculous, the *pre*-school period, *pre*-natal work —these are the keynotes of the modern public health campaign. To start soon enough is the secret of prevention.

HEALTH IN INDUSTRY

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National Program of Vocational Rehabilitation

BY JOHN A. KRATZ, CHIEF, VOCATIONAL REHABILITATION DIVISION, FEDERAL BOARD FOR VOCATIONAL EDUCATION, WASHINGTON, D. C.

THE Federal Act for the promotion of vocational rehabilitation of persons disabled in industry or otherwise became effective June 2, 1920, and prior to this time some of the states had enacted rehabilitation legislation, but only five or six of them had actually begun the work. In order to receive the benefits of the Federal Act, the State must accept its provisions by an act of the legislature. Thirty-four states are now cooperating with the Federal Board of Vocational Education, the agency which administers the Act, and assurances have been received indicating that in all probability legislatures in 1923 will make the number forty-two.

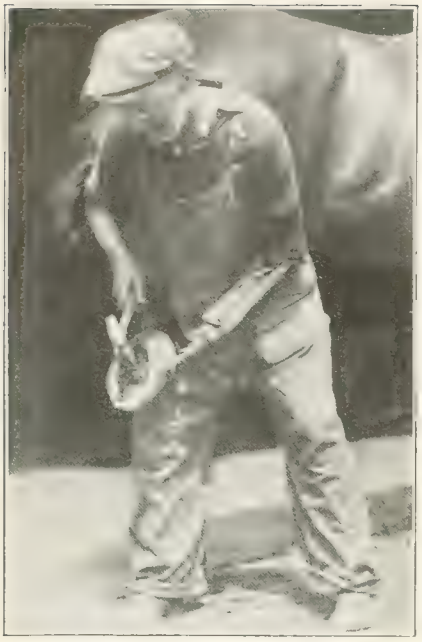
Despite the post war depression, and consequent economic programs inaugurated in the states, there has been a very gratifying extension of the rehabilitation service throughout the country. During the fiscal year 1920-21, 457 persons were completely rehabilitated. At the close of that year 1,013 persons were receiving some form of rehabilitation service. During the fiscal year 1921-22, 1,900 persons were completely rehabilitated. At the close of the same year more than 8,000 persons were receiving some form of rehabilitation service. By November 1, 1922, the roll of active cases had reached ten thousand. That these figures are significant will appear from statements made later in this article. The vocational rehabilitation and return to employment of disabled workers under state auspices is comparatively a very new project. Much has yet to be learned as to the most effective means of refitting the disabled for remunerative employment. As the states develop the mechanics of case procedure and increase the number of their cooperative contacts with other agencies, the number of rehabilitations will increase correspondingly. The prospects for future development of the work, and increase in volume of service are, however, bright, although dependent upon many factors.

A disabled worker who through the Rehabilitation Department of his state was enabled to carry on successfully and secure promotion in cotton mill work.

The Federal Act promotes the vocational rehabilitation of disabled persons and their return to remunerative employment by providing for Federal and state cooperation. The state is directly responsible for the work, receiving from the Government annual allotments of money, its allotments being in the proportion of its population to the population of the nation. Expenditures from the allotments of Federal money must be matched by expenditures from state or local funds, public or private, used under public supervision for purposes which are permitted under the Federal act. The Federal Board of Vocational Education is the Federal agency cooperating in administration of the act, making the allotments, and promoting standards. In the state, administration of the rehabilitation service is in the hands of the State Board for Vocational Education, which, under the act, must cooperate with the agency that administers the state workmen's compensation law. In several states, the state board has delegated the direct execution of the work to the labor or compensation department, but, of course, has not relinquished its responsibility for administration and supervision within the state.

The act does not specify how rehabilitation is to be effected, but the Federal Board recognizes the following avenues to vocational rehabilitation and return to employment:

(1) Service leading to physical reconstruction resulting in suitable employment; (2) service providing artificial appliances as vocational aid



A corn shredder victim, now the only one-armed blacksmith in his state

and leading to suitable employment; (3) service providing suitable work, or work conditions, for persons with disease tendencies; (4) service providing opportunity for the person to become established in a business of his own; (5) service providing suitable placement in employment; (6) service providing training resulting in suitable employment. Federal funds may not be used for physical reconstruction, for living maintenance, for purchase of office equipment, or for buildings or land. Living maintenance is provided through such sources as accident compensation, the person's resources, loans, contributions from private sources, or state funds provided specifically for the purpose. The states which now have maintenance funds are Minnesota, Massachusetts, New York, New Jersey, North Carolina, Pennsylvania, Wisconsin, and Wyoming. These funds are provided through general state appropriations or as additional compensation.

Cooperating Agencies

Because of variations in age, disability, education, experience, capacity, and spirit, disabled persons must be dealt with individually, not in groups. Each case presents its special problems. Frequently it is necessary for the rehabilitation department to appeal to other state departments, or to private agencies for special services. A recent case will illustrate. A young man with a left leg amputation a little below the knee came to the attention of the rehabilitation service in one of the states, and it was seen that the most feasible program of rehabilitation would involve the provision of an artificial leg. Accordingly he was taken for a fitting, but it was discovered that the stump has been sloughing, and was, therefore, in no condition to take an artificial appliance. The doctor who was consulted advised that an operation would be necessary to put the stump in condition. Inasmuch as the rehabilitation department could not pay for surgical operations, it was necessary that the services of some other agency be enlisted. Through the efforts of interested persons who were cooperating in the case a social agency contributed funds not only for the operation, but, also, for hospital expenses. After these preliminary measures, the young man was inducted into training, and finally readjusted to remunerative employment.

It would be impracticable to illustrate the many kinds of services which are needed from others. Among the most important or necessary at times is that of living maintenance. For this assistance, the rehabilitation department must go to outside agencies when compensation or state funds are not available. Frequently provisions must be made for the family of the disabled person while he is being retrained. The following are some of the services which are provided by cooperating agencies:—Reporting cases, financial aid, advisory service, making survey, therapeutic aid, reinstatement in union, giving employment, encouraging disabled person, family rehabilitation, influencing public opinion and sentiment for the work, influencing persons to accept the rehabilitation service, providing artificial appliances or teaching equipment, setting up disabled person in business, and vocational advisement. Some of the agencies which cooperate are:—State medical associations, county medical societies, hospitals, councils for social agencies, associated charities, district nurses, Red Cross, Rotary, Kiwanis and Lions clubs, newspaper associations, societies for crippled children, parent-teacher associations, Y. M. C. A., Y. W. C. A., Chambers of Commerce, state and county officials, church associations, fraternal orders, Federations of Women's Clubs, labor organizations, employers, and employers' organizations, and individuals.

Organized Cooperation

It has been shown that in many cases special services must be secured from other agencies which are better prepared than the rehabilitation department to render them. Despite the great variety of assistance which the department finds available, because of its limited staff, and in many states large territory to be covered, the rehabilitation service is forced to seek the cooperation of local communities. This is best effected when the community is made to realize its responsibility for its own handicapped. Usually it is not difficult to influence the community to realize this responsibility.

In the program of rehabilitation of a single individual there are frequently multitudinous details. Often

A worker who lost both hands from electrical burns. His company supplied the artificial arms, and through the cooperation of the rehabilitation officials gave him an important outdoor position.

the person needing the service must be sought out, must be visited at the hospital to prevent loss of morale; he must be interviewed often a number of times for the purpose of taking a mental, and spiritual status. On the basis of this so-called survey, at least a tentative plan of rehabilitation must be developed, frequently necessitating conferences with prospective teacher, employer, and other persons involved. Generally speaking, first eligibility and, later, susceptibility must be determined. From the inception to the close of the case many services must be rendered, a large proportion of which might be performed by agencies or individuals in the community of which the disabled person is a resident.

A number of the states have developed a system of organized cooperation to meet the above situation. Clearing agencies to whom cases are referred for preliminary study and recommendations are established in communities. The function of such clearing agencies is to save the rehabilitation department much work which it would otherwise have to do. This agency may give assistance in the determination of eligibility, susceptibility, or in the preparation of tentative plans of rehabilitation. Usually the clearing agency consists of a representative of the state department of public health, or public welfare, or of a social agency, or other interested agency or individual. This agency is instructed relative to the benefits of the act and the kind of service the state can render. The work of the agency is done in close cooperation with, and under the direction of the state department of rehabilitation. All cases originating in the territory for which the agency is responsible are referred to it. After a careful study of the case, a representative of the clearing agency interviews the disabled person. His findings and suggestions are forwarded by the clearing agency to the state department.

As far as possible, the work of these agencies is supplemented or supported by advisory committees, usually consisting of four, five, or six members. A typical committee might consist of representatives from each of the following organizations: Vocational Education Department, Red Cross, Employers' Association, Bureau of Community Welfare, District Nurses, Employment Office, County Agricultural Agent, Employees' Association, etc.

The function of the advisory committee is to discuss the cases which have been referred to it by the clearing agency or state department, and as far as possible to endeavor to develop in each case a plan of rehabilitation. Not only do the committees make recommendations as to possible programs, but they go further in some instances and assume the responsibility for seeing that employment is guaranteed at the conclusion of the training program. In addition, these committees often plan for the provision of maintenance or physical rehabilitation, or such other activity for which the Federal or state funds may not be used. In short, the main function of the advisory committee is to assume in large part responsibility for the rehabilitation of persons whose cases come before them for consideration, thereby relieving the state department of many activities which the local committee might often be better qualified to perform. It should be understood, however, that the advisory committee has no power to act where the expenditure of Federal or state funds is involved. In fact, the committees' recommendations are referred to the state rehabilitation service, which must pass upon them before they can be effective. From time to time state officials meet with advisary committees.

At the age of thirty-five this man lost his left foot. He is now operating his own grocery store. Compensation funds paid for the original stock. The Rehabilitation Service provided a special course in elementary accounting.

It is evident that under such a plan the state rehabilitation service is saved considerable expenditure of time and money. The advantages of such a plan to the state rehabilitation services are evident. One of the outstanding of these advantages is that the responsibility for the rehabilitation of disabled persons in a community is placed upon that community. It has been found that most communities are ready and willing to assume the responsibility, and wherever cooperating committees have been organized, they have been for the greater part rendering conscientious and effective service.

The success of the plan depends very largely upon the administrative ability of those who have charge of the state rehabilitation service. They must be organizers, as well as executives, and must possess tact and diplomacy. There is danger that the work, when tied up closely with social agencies of a definitely charitable nature, will be looked upon as charity, not only in the minds of the recipients, but also in the minds of business, professional, social, and industrial management people who co-

His left hand practically useless, this young man was discovered to have a talent for drawing. Once a farm hand, now a sign painter

operate in local communities. Inasmuch as social workers feel an equal responsibility for bedridden cases, paralytics, children, and the chronically sick, these naturally are brought to the attention of the service, although in many cases they are ineligible for, or not susceptible of vocational rehabilitation.

For the most part, the state rehabilitation laws, being acceptances of Federal legislation, are uniform as to benefits. These consist mainly of tuition for training, provision of instructional supplies, and under certain conditions, instructional equipment for individuals, prosthetic appliances when aids to vocational rehabilitation, and all services in connection with advisement, placement, and follow-up to a logical conclusion in remunerative employment. Some of the states can do more. For instance, in New Jersey physical rehabilitation clinics are maintained in five centers, for the purpose of providing physical reconstruction or therapeutic treatment. In many cases the only avenue, or it may be the best avenue through which vocational rehabilitation should be attempted is physical reconstruction. In states whose rehabilitation laws do not permit expenditures of their funds for physical reconstruction, other methods of securing it, when needed, must be resorted to.

In Iowa there is a hospital law which provides disabled persons with everything needed in the way of medical and surgical treatment.

Often in other states state-aided hospitals are used, while at times this service is secured through charitable assistance of both individuals and organizations, as well as the medical fraternity in general. Reference has been made above to those states whose laws provide living maintenance for disabled persons while in rehabilitation training.

The nation at large is convinced of its obligation to fit or refit handicapped persons for remunerative employment. The work is new, and consequently for the next few years new methods of procedure and administration will be discovered and tried out. Some research is now being made in some of the states looking to the discovery of the kinds of employment in which physically disabled persons can carry on and to advantage. It is being demonstrated that to be disabled does not mean to be unable. Since June, 1920, the activities of the Federal Board have been almost wholly needed and given to assisting the states in setting up their rehabilitation machinery. Five bulletins have been prepared upon various phases of the work, which set forth policies of administration, methods of procedure, and material for the general promotion of the work. In the next few months, there will be published a bulletin which was prepared by the National Tuberculosis Association, in cooperation with the Federal Board, entitled "Problems of the Tuberculosis in Employment." Plans are now being made for research in several fields, looking to advancement of the program. The work in all of the states is still in experimental stages.

Dental Service in Industry

THE close relationship between certain industrial diseases, notably lead poisoning, and diseased teeth was one of the moving causes for the survey made during 1921 by the division of hygiene and engineering of the Pennsylvania department of labor and industry to determine the extent of dental service for employees in industrial plants in the United States and Canada.

Replies were received from fifty-nine industries, ranging from 12 in Pennsylvania, 11 in Ohio, 8 in New York, 6 in Massachusetts, 4 in Illinois, 2 each in Michigan, Minnesota, New Hampshire, and one each in Alabama, California, Colorado, Connecticut, Delaware, Louisiana, Maine, Missouri, Rhode Island, Virginia, Wisconsin, and Ontario, Canada.

Thirty-three plants employing 209,743 reported that total number of employees taking advantage of dental service were 125,222 or 59.7 per cent. Fifty-nine plants employed dentists, 40 for full time.

From the replies of fifty-nine firms as to the number of assistants in the dispensaries, it was found that 75 nurses, 26 attendants, and 26 clerks were employed in all the plants for dental service.

The average cost of original dispensary equipment to the fifty-three firms replying to this question was $1,958.03; the least cost of equipment in one plant was $328.28; the greatest cost was $8,000; while the total cost in all plants was $103,775.46. Cost of operating the dispensary per year per patient was,—average cost $3.38, least cost $0.30, greatest cost $27.19.

Treatment given in the dispensaries circularized consisted of examination in 100 per cent of the plants; cleaning of the teeth in 96.4 per cent; radiographic work in 44.6 per cent; emergency treatment in 89.3 per cent; and examination, cleaning, radiographic, emergency, and operative work not emergency work in 30.4 per cent of the plants.

Fifty-five of the 56 firms replying stated that they considered the operation of an industrial dental dispensary a success; one considered it only partially successful.

Industrial Medicine and General Practice

Complementary Services, Not Professional Rivalries, Must Characterize Medical Organization

By C. C. BURLINGAME, M.D., South Manchester, Conn.

THE men who are the oldest in the industrial medical field are more than ever before of the opinion that the position of the industrial physicians in the scheme of society is still undetermined. Even less definite is the matter of his future status. About the only thing they know for certain is that the industrial physician has seen fluctuations enough during the past few years to make him unwilling to predict what the future holds for him. Only a few months ago, we were prone to assert very glibly that industrial medicine as a new specialty had opened up great possibilities for the medical profession, but faith in industrial medicine as a great specialty with a bright future, has been severely shaken during the late period of industrial depression. Fired with the possibilities of medicine in industry, physicians entered industry as salaried men, submerged their individuality, and became an integral part of business organization. Then financial depression ensued and men of excellent type found themselves relieved of their duties, and given a choice of looking for other jobs or embarking anew as independent practitioners. While this dealt a severe blow to the class of so-called full-time industrial physicians, the fact that we have, in some instances, failed to develop adequate working relationships between medicine and industry should not destroy our faith in the future of this newer specialty.

Instead of referring to the "industrial physician," the whole subject may more properly be discussed under the inclusive term "industrial medicine." Whatever may be the problems of the industrial physician, industrial medicine finds a necessary division of function into (1) caring for medical and surgical conditions imposed upon the industry by legislation; (2) assisting in the physical placement of employees; (3) assisting the operation of benefit associations of various kinds; and (4) the maintenance of industrial efficiency through health measures. The caring for compensation cases, placement of employees on the job, and benefit association features, as medical problems are quite exclusively industrial and constitute a service that is largely a direct charge upon industry. But to what extent are the development of physical efficiency and the solution of health problems industrial rather than community or personal problems?

Whether future developments will show that it is to the best interest of all concerned for industry to operate its own medical departments or to have its surgical and medical work done by private physicians or groups of physicians, in the light of our present day knowledge we cannot say. Nor can we at present pass upon the merits of the part-time practitioner as against the full-time industrial physician, or upon the industrially controlled clinic as compared with the center operated by some community interest with industry bearing its share of the expense. Whatever the future may show to be to the best interest of the profession and the community, the problem of developing efficiency by health measures cannot be carried to its maximum by the sole efforts of any physician or group of physicians in the direct or indirect employ of an industry. So long as the American working man retains his right to choose the physician he wishes, just that long will it be to the interest of the industrial physician to form a partnership—to make this medical problem a common problem with the community practitioner and to enlist the support of every practising physician in the community in his efforts to help solve it.

Many Problems in Common

Physical examinations for employment, caring for compensation cases, and the insurance features are simple in comparison with the problems involved in maintaining in general health and efficiency the industrial group, and it is in this most difficult part of the industrial physician's work that it becomes particularly important to enlist the cooperation of the general practitioner.

Some people believe that all men are competitors, and this being true, peace and harmony in society are dependent upon the maintaining of competition only upon a fair basis. We must remember that the physician is *per se* an individualist and in the final analysis cannot be expected to welcome any scheme which will tend to lower his prestige or to cause his opportunity for personal service to the community to pass into the hands of someone else. Naturally, he cannot be expected to welcome any scheme which favors a selected group of men either in the employ of a company or subsidized by a wealthy concern with a prestige beyond the possibilities of the man in general practice, unless at the same time he is likewise afforded a fair opportunity to develop and gain prestige in his community.

It might be pertinent to discuss in this connection the question of what a financial advantage industrial medicine as a specialty might become to the general practitioner, but I believe the majority of physicians, even in this commercial age, would willingly make financial sacrifice if it were shown to contribute to the best interests of the community. On the one hand it looks very much as if the man in general practice would have to accept the industrial physician as a specialist, but he naturally views with some degree of uneasiness the tendency of industrial medicine to encroach more and more upon the field of general practice. In not a few instances it has gone as far as the company furnishing a corps of physicians to care for employes' families in their homes when ill. He may even visualize a future when the entire care of the working man will be placed in the hands of physicians hired by the company who have become part of a physical efficiency machine, and he asks himself if, in the final analysis, this is to the best interest of the profession or the community. If such a condition could be expected to develop, it must be conceded that the general practitioner would have a sound basis for his feeling of uneasiness.

It is quite impossible to lay down a set of rules which might be adopted for the working out of satisfactory relations between the industrial physician and the general practitioner

in every community. The local problem is bound to be peculiar to the particular industry and to each community; but there are certain fundamentals which should be noted in the establishment of any industrial medical department or industrial medical clinic. In establishing an industrial medical department it should constantly be borne in mind that it is poor business to destroy the prestige and efficiency of the general practitioner inasmuch as he is one of the partners of the industrial physician in solving the problems of health and efficiency. Would it not be better for the man devoting himself entirely to industrial medicine to confine his efforts to meeting the legal and moral responsibilities placed upon the employer, and use the private practitioner as far as possible in the work of solving health and physical efficiency problems of the industrial group? To be a little more concrete, could we not assign to the industrial physician the duties of inspection of health hazards within the plant, the care of conditions arising out of or in the course of employment, inquiry into occupational research, the administration of first aid medical and surgical treatment, the handling of routine minor illnesses which would not ordinarily reach a doctor but the treatment of which would keep the employee on the job, and the maintenance of the industrial dispensary as a general clearing house to direct employees into the hands of local physicians and specialists? To this end could not the industrial physician add to his personnel in the capacity of consultant any physician who cares for the employees of his concern? If the industrial physician drew the line at this point, and the man in private practice accepted this as a fair division of labor, it could be summarized as follows:

The industrial physician would be on a sound basis so long as he confined himself to meeting the moral and legal obligations of the company he serves, by proper placement of employees on the job, the necessary administration of any insurance schemes, and any other measures necessary properly to supervise the health of the employees. All else should be referred to the doctors in the community.

Further, the industrial physician under such an arrangement would place any and all facilities of the industry at the disposal of the private practitioner whose honest endeavor it is to return an employee to industry as completely and as quickly cured as possible. Though this might be regarded as passing over to the private practitioner some of the prerogatives which could be enjoyed exclusively by the industrial physician, the industrial physician could thereby get the private practitioner into effective cooperation with his work and would become relatively more efficient. If, by backing the private practitioner, the industrial physician could successfully keep a larger group of his employees under the best medical and surgical supervision, it would mean a greater gain for him than if he undertook to do all the work himself, even though he lost an opportunity to build up a massive organization of doctors and nurses under his own personal control.

The more I see of the medical department in industry the more I am convinced that the rôle of the industrial physician should become more and more that of a friend and consultant of the private practitioner who is trying his best to make the working people well and keep them well.

It is a perfectly impossible social scheme for industry ever to consider placing on its pay roll all the physicians who may be caring for its employees. Unless that can be done, the private practitioners are going to play a larger rôle than the industrial physician in physical efficiency and health in industry, and there should be no rivalry between the industrial physician and the man in private practice. If such rivalries have arisen in the past, it is because the industrial physician has failed to appreciate that a successful and competent physician in the community is the best possible partner in solving the health problem of industry.

There are, however, many things which militate against the success of really sound theories of such cooperation. Absolute frankness and the fullest confidence on the part of both the industrial physician and the general practitioner are prerequisite. The general practitioner may feel that he loses cases to the industrial physician; and the feelings of the latter may be even more hurt when a patient could have received free treatment at his hands prefers to go to a private practitioner. Such a situation is obviated, however, if from the first, the industrial physician and the general practitioner will accept the division of duties herein outlined and it becomes perfectly possible to arrive at a peaceful, harmonious working basis. To accomplish this the industrial physician must remember that the man in private practice is essential to the success of the community and any cases not falling within his assigned duties must be constantly referred to the general practitioner. In referring cases there must be no preference shown between men who are striving to do good work in the community. The industrial physician must observe the ethics of his profession more strictly than almost any other type of professional worker. In case of doubt he must always favor the man in private practice. He must remember that patients may come to him with all kinds of wierd tales about what the other physician said, etc., statements which most likely have never been made or are misquoted and misunderstood. He must remember that he may have at his disposal a district nursing force who, believing in their industrial physician, could easily take advantage of a situation and divert cases; he must guard against this and see to it that his nurses are ethical in their practice and loyal to the private practitioner whose cases they are seeing. The road is full of pitfalls for the industrial physician who fails to impress upon his nurses the importance of being loyal to the attending physician.

A Reciprocal Relation

On the other hand, the private practitioner must remember that the industrial physician has a specific responsibility toward both employees and employer, and he should be willing to cooperate with the industrial physician in putting his job over even though it may mean the occasional loss of a case. He must be willing to give the industrial physician credit for wanting to have the confidence of patients and employees, even though he does not collect an individual fee for his services. He must be willing to appreciate that the industrial physician's stock in trade is not materially different from that of the private practitioner, that when the industrial physician fails to hold a patient it hurts him just as much, if he is conscientious, as it would the private practitioner. The industrial physician, therefore, naturally resents any acts or comments on the part of the private practitioner which tend to lessen the employee's confidence in industrial medical work. And, what is of the utmost importance, the private practitioner must have sufficient confidence in the industrial physician to meet him halfway to discuss the difficulties which lead to misunderstandings and wide breaches of

friendship for the industrial man.

At this point a word of warning is in order. Unless the man in private practice and the profession as a whole take more interest in solving the medical problems in industry, the financial interests are going to be obligated to undertake the health supervision of their plants without the aid of medical societies or ethical groups. The private practitioner who is not willing to devote some of his time to a study of the industrial conditions in his community is unfair to his patients. To serve his patients he must know the etiology of the diseases which he may be called upon to treat, and must know industrial conditions in order to pass upon the etiology of the diseases he encounters in his routine practice.

Pioneer Industrial Hospital Erects New Plant

Nurses' Home Included in Building Plans of the Cambria Steel Company

By JOHN B. LOWMAN, M.D., Chief Surgeon, Cambria Steel Company, Johnstown, Pa.

WHAT has been pronounced by many who have inspected it as the finest industrial hospital plant in the country has been completed recently at Johnstown, Pa., by the Cambria Steel Company for its employees. The hospital was opened for service July, 1921, and has accommodations for eighty beds—four wards and nine private rooms. The building covers approximately 16,500 square feet. The central administrative bay is four stories high including basement, and the two wings three stories.

The original hospital, a pioneer of its type, was built in 1887 under the direction of Dr. Webster B. Lowman, surgeon of the Cambria Iron Company, and was a frame structure with twelve beds. This was the first hospital ever operated by an industrial corporation, and from it similar enterprises in other localities had their incentive. The great benefits derived from this hospital required the addition of many departments, until in 1919 the cost of maintenance emphasized the necessity for a more modern building adapted to the best industrial surgical work of the day.

Cambria Steel Company through its president, Mr. A. A. Corey, Jr., and under the direction of the chief surgeon, Dr. John B. Lowman, decided to erect a new building which would be in the line with the best modern hospitals in the country. The hospital staff and the engineering department were authorized to study prevailing practices in the newest hospitals. Representatives therefore made complete inspections of such existing installations, and the result of their studies is embodied in the new building.

It was found desirable to separate the nurses' quarters from the hospital department, and accordingly a nurses' home in a special building was authorized as part of the construction. After the plans had been properly discussed and the general working layout agreed upon as the best obtainable, the work was handed to Mr. Benno Jansses, architect of Pittsburgh, with instructions to furnish designs for both a hospital and nurses' home. The contract was awarded to Mellon Stuart Company of Pittsburgh who finished the building according to time and specifications.

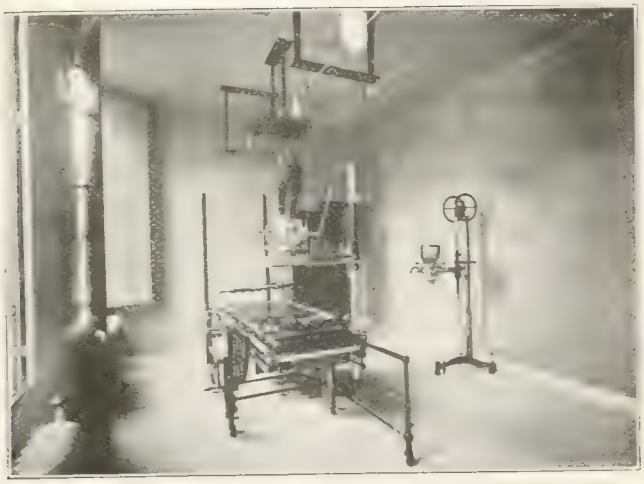
The nurses' home is adapted for housing thirty nurses and is complete in every detail. The first floor is devoted to reception rooms, private and public sun porch, toilets, lavatories, laundry and sewing rooms. The second and third floors are given over to private rooms equipped with baths, toilets and lavatories, private and general; on the roof is an open-air garden.

The hospital is of fireproof construction throughout, the walls being of red brick, the frame and floors of reinforced steel, the partitions of gypsum, and the roof of slate laid on concrete slabs. Trimmings are of Ohio marble. All floors are finished in terrazzo except those of the private rooms which are hard maple. The bases are terrazzo coved and have been set flush in plain and elevation.

In the basement wings are the machinery sections, and in the center basement are located the main kitchen, refrigerators, nurses' dining

The new hospital building of the Cambria Steel Company at Johnstown, Pa. This company claims the distinction of erecting the first industrial hospital in the country.

Off the solarium on third floor is a gymnasium with reconstruction outfits, occupational therapy equipment and facilities for massage work.



The x-ray department of the hospital

Thirty student nurses are housed in this new residence

room, and storage rooms. On the main floor of the north wing are the receiving rooms and out-patient department. In the south wing are the private patient rooms, and in the center bay, the superintendent's suite, main office, doctor's office and two large reception rooms for visitors. Spacious halls add to a pleasing interior.

On the second floor wards are located in each wing, also a special ward in the administrative bay all equipped with diet kitchens, sterilizing rooms, nurses' stations, recovery rooms, patients' clothes' rooms, lavatory and bathrooms of the best sanitary type. The operating suite, the laboratory and x-ray department are also on this floor.

On the third floor are located an open air solarium, enclosed solarium and gymnasium; also a room for a McKenzie reconstruction outfit, occupational therapy and massage work is found.

The building is equipped with a modern elevator with double exits, an enclosed fireproof stairway which runs from basement to third floors, two enclosed fire escapes, and one outside fire escape. Each floor is equipped with fire pressure system and hose connections fed from the water lines of the company. The building is also thoroughly equipped with fire extinguishers. The heating system is direct steam, high pressure type, from the main boiler plant of the Cambria Steel Company, the pressure being reduced to service required by a control unit at the basement entrance.

Every room and every department are equipped with a vacuum and a plenum system of ventilation which permits the temperature of the hospital to be the same rating throughout. The drinking water is sterilized, filtered and ice-cooled by a Forbes sterilizing plant in the basement, then circulated to drinking fountains in all parts of the hospital. An ice machine which makes ice for general hospital use has a brine circulating system for cooling the refrigerators on the different floors. Electric lighting and power are furnished by the Cambria Steel Company, and are of both AC and DC type, modifications in phase and voltage being possible by a necessary motor generator and transformer. Both phase and voltage may be controlled by works or city service, each available at all times.

The modern type of steel cupboards, closets, blanket warmers and lockers which calls for built-in construction, has been installed so that no corners, or dust-gathering shelves are found in any part of the hospital from the basement to the top floor. The halls and stairways show flush walls and no projections, all door bucks staying flush with walls even at sill entrances.

In addition to the nurses' home and hospital, which have been newly constructed, there are quarters for the laundry and help, newly renovated and adapted for service in accordance with the latest ideas. The hospital can be reached from all departments of the company by direct telephone connection. Ample ambulance service is also available, and a complete staff of surgeons and nurses is always on duty.

The hospital is located near the Pennsylvania Railroad station on a hill known as Prospect, and is within ten minutes' ride of the farther point of the works. The flexibility of the system is such that in case of emergency 100 patients can be cared for, and in ordinary times from sixty to seventy. When racial or other factors enter, isolation is possible without additional expense. From the main hospital the various first-aid stations in the works are directed and the nurses at these stations are in constant communication with the hospital day and night.

Pennsylvania Industrial Surgeons Meet

The sixteenth conference of Pennsylvania Industrial Physicians and Surgeons met November 17 at Pittsburgh, under the chairmanship of Dr. Francis D. Patterson, chief, division of industrial hygiene and engineering, Pennsylvania department of labor and industry, Harrisburg.

The program was composed of the following addresses: Address of welcome by Clifford B. Connelley, commissioner, department of labor and industry; industrial tuberculosis by Dr. F. S. Kellog, physician Western Union Telegraph Company, Pittsburgh; factory ventilation, Dr. C.-E. A. Winslow, professor of public health, Yale University, New Haven; adequate sickness records of lost time in industrial establishments by Dr. L. R. Thompson, surgeon-in-charge, division of industrial hygiene and sanitation, U. S. Public Health Service, Washington.

Dr. Lightner Witmer, professor of psychology, University of Pennsylvania, spoke on psychological tests that aid in determining the industrial efficiency of the worker. Dr. Frederick L. Van Sickle, executive secretary, Medical Society of Pennsylvania, talked on revamping state medical legislation; and Dr. R. R. Sayers, chief surgeon, U. S. Bureau of Mines, spoke on the care of the injured miner.

The Tennessee State Board of Health in conjunction with the U. S. Health Service will issue a series of weekly letters pertaining to malaria. These letters will be published in the county papers in the western division of the state.

The Irreducible Minimum in Industrial Accident

By SUSA P. MOORE, Associate Editor, The Nation's Health, Chicago, Ill.

THE average man who is overtaken by a disease regards the matter as an entirely fortuitous occurrence. In such an event he thinks of himself as an unfortunate victim of circumstances and does not take the trouble to analyze the situation as the natural outcome of a combination of factors of temperament, habit, inheritance, and contact. Meanwhile a progressive program of preventive medicine finds its chief obstacle in this passive acceptance of a certain inevitableness in the occurrence of disease.

The same fatalistic attitude is encountered in the field of accident prevention. When the engineer has finished his job of installing safety devices he can be credited at most with forestalling not more than from 25 to 33 per cent of industrial accidents. The rest he breezily charges to the unpredictable "personal equation" represented by the individual workman and, barring some educational work in the form of a few more or less effective posters and some printed or spoken propaganda, the average plant manager at this point throws up his hands and shifts the responsibility.

But dodging the issue does not lessen the burden, and scientific organization must perforce face the problem of the preventable accident. The individual workman cannot, by trial and error, discover for himself the most favorable conditions for the work he has to do. They must be the subject of inquiry by the management. Organization of industry according to the basic principles governing human labor is economical organization, and accident prevention is peculiarly susceptible to the benefits of scientific control.

Defines an Accident

It is time that the definition of an accident as a "non-essential circumstance or attribute" should replace the notion that accidents, being unforseen, are therefore unavoidable. In point of fact, accidents do not "happen." They are reducible to laws; to a marked degree they are predictable; they are prone to affect particular groups and definite types of people. They even seem to run in some families. The fundamental necessity in accident prevention, then, is for the management to recognize causal relationships, to admit that every accident carries culpability somewhere, and that contributing conditions call for analysis and eradication. It may almost be said that the fitting of guards to dangerous machines is the lesser part of the safety program. At least it is quite as essential to analyze the workman and the job as it is to supply the mechanical safeguard and it is of the highest importance to recognize in the working personnel the adventurous types whose mental make-up unfits them for hazardous positions or mechanical routine. This need is finding expression in the organization here and there of schools for foremen as it is coming to be considered that the proper handling of craftsmen rapidly develops the novice into the skilled workman, and at the same time makes for the initiative and cooperation which is everywhere so much desired.

There has, however, been very little discussion of the need of training for the rank and file of the men. It is well understood that conformance to the general laws of mechanics is an indispensable preliminary to the use of any machine, but for the most part unintelligence has marked our handling of the human motor. Only a self-contained, properly trained workman can be depended upon to meet the thousand and one adjustments of the work-a-day world. Then why is not more effort devoted to the production of skilled operatives?

Far more often than is generally appreciated the underlying cause of accident is fatigue or clumsiness or inexperience on the part of the operative. A detailed inquiry into a series of one thousand compensated accidents to women[1] in the state of New York brought out that fact that 18 per cent of the injured operatives had been with the employer less than a month; 50 per cent, less than six months; 63 per cent less than a year. Sixty per cent of these casualties affected workers under twenty-five years of age, and thus represented a greater economic loss by reducing the working period of the younger group. A heavier toll fell upon the married group,—those who probably suffered undue fatigue because they were doing double duty as home makers as well as wage earners. Health conditions, general fitness for the job, experience, fatigue,—all enter into the problem.

The health aspects of the question are beyond the bounds of this discussion excepting as output, tenure of the job, and contentment must be considered to hinge upon due regard to physiological requirements in working conditions, but there is no valid reason why the valuable findings of Watson on economical methods of learning and on the general principles affecting human adaptability should not be applied to industrial processes and ultimately effect a reduction in industrial accident. Intelligent handling and the gradual induction to the job would undoubtedly make for precision of movement and accuracy of work. The intricacies of industrial processes, the haphazard choice of operatives, and the casual introduction of the workmen to their specific work are circumstances that favor accidents and their paucity bespeaks a degree of adaptability that does the average workman credit.

An undue proportion of industrial accident falls upon the untrained and unskilled and those at the lowest rung of the wage ladder. The cost of the raw recruit is not paid for only in accidents, however, for the work done per day by the apprentice averages 15 per cent less than that of the skilled workman and represents a corresponding expenditure of about 65 per cent more energy. The added element of fatigue alone, with its characteristic lack in precision of movement serves to promote accidents, while the amount of excess work done (actual manual work) and the number of false steps taken can be estimated on the basis of the heap of discarded models which litter up the workshop.

The men are best trained on the job, particularly where the movements are complex and the work exacting. Skill acquired in preliminary training along other lines is not necessarily transferable; at least we are forced to admit that the value of our formal methods of training has been greatly overestimated. Certainly the leaders of industry are for the most part industrially trained. A. W. Forbes has recently come out with a scathing arraignment of recent attempts to teach a vocation in school. How many opportunities are open for learning on the job it would be difficult to say, but they should be utilized to the utmost for their educational possibilities.

1 Nelle Swartz: The Nation's Health, June 1921.

Watson lays particular stress upon economical methods of learning and Pyle, working with typical groups, reports on error percentages which must in industry be regarded as catastrophe potentials. The slow group, that is, those gradually inducted into a given process, in every case produced more work with greater freedom from error than the ones in whom the process of learning was unduly "speeded up." Spasmodic variations were in every case signs of bad work and undue expenditure of energy. Part of the business of education is to supply thought-out successions of movements so that response can be more or less automatic. Faulty habits are easily remediable under direction. Effort should be made to eliminate those attitudes or motions of the body which are valueless or even detrimental. The job should be investigated as to tools, posture, unnecessary oscillations of the body and irregularity in the movements of the limbs. Undue strain of any part of the body should be avoided and the job charted, at least as to external conditions, so that the apprentice would have ample opportunity for intelligent learning. Amar concludes that on the average one-third of the available energy of man is wasted; that is, methodical organization could be expected to increase efficiency in that proportion. Industry pays for inefficiency, and the toll of haphazard learning is exacted in accidents and spoiled work, not to mention the price paid in loss of health and efficiency. When the mechanical features of inspection and protection are perfect, preliminary training adequate, and supervision scientific, then and then only may the unpredictable, unpreventable accident be charged to the convenient category of the "personal equation." Interest in output gives place to interest in working methods and in the worker.

Conference Board of Physicians in Industry*

At the thirty-fourth meeting of the Conference Board of Physicians in Industry, held in New York City, September 16, 1922, many questions of interest and importance were discussed. Of particular interest was a report on the use of a 2 per cent solution of mercurochrome in the place of iodin for the treatment of industrial injuries. By the use of this material there had been no infections, much less discomfort was caused the patient, and less staining of the patient's skin was noted than when iodin was used. As this had been tried in only one industrial dispensary, it was felt that a more extended use of this solution should be had before its adaptability to general industrial work was demonstrated.

Dr. John J. Moorhead reported that some experiments had been carried out at the Post Graduate Hospital, New York City, in which it was found that the application of iodin to the unbroken skin of animals resulted in a sterile surface; while other forms of cleansing, such as soap and water with vigorous brushing, failed to give sterile results. He stated that the time element in the application of disinfectants to wounds is of the greatest importance. If an open wound can be disinfected within the first eight hours, much better results are produced than if the initial disinfection is delayed beyond this time. Experimental work shows that after about eight hours there is a considerable increase in the number of bacteria present in the wound secretions and that this number continues to multiply for about three days, after which there is a marked reduction in the number present for a short period, then another increase in numbers for a similar three days, this process being continued until and unless adequate disinfection is applied to the wound.

While it was felt that in certain types of injury, such as extensive burns, other disinfectants are of value, it was the opinion of the conference that, for general all around wound disinfection purposes, iodin still holds first place.

Benzol Poisoning

Dr. R. S. Quinby presented a paper on benzol poisoning in which he discussed the chemical composition, properties, and use of benzol and similar products. He pointed out that as it is also known as benzene, which has the definite chemical formula of $C_6 H_6$, it is frequently confused with benzine, a complex mixture of unknown chemical composition. Benzol is derived from coal tar, while benzine is derived from petroleum.

Benzol is widely used as a starting substance in the manufacture of coal tar dyes, also used in the manufacture of explosives, artificial perfumes, drugs and photographic chemicals. Owing to its high solvent property, it is useful in rubber and artificial leather industries and in the manufacture of quick drying paints.

Industrial poisoning arises for the most part from inhalation of fumes and experience has shown that the relative toxicity of pure and commercial benzol seems to lie in the connection between their boiling points rather than to any impurities contained in commercial benzol. The benzols with lower boiling points give out more vapor and are greater hazards.

Individual susceptibility to benzol poison varies. Females are more susceptible than males. The very young, the very old, and those with organic diseases—particularly heart and kidney diseases—are more susceptible. Addiction to alcohol and excesses of all kinds increase susceptibility. Hot, humid weather conditions with poor ventilation appear to exaggerate the hazard.

Prior to 1914, only three fatal cases had been reported in American medical literature. Since that time a considerable number of accidents of both acute and chronic cases of benzol poisoning, fatal and non-fatal, have been reported in this country and abroad. Some rather startling cases have been reported, such as the following from England: A tank car was unloaded, washed with water, steamed out, left filled with water for twenty hours, then washed twice, again filled for twelve hours with water, finally left empty for ten days with a sixteen-inch manhole open. A man who was then sent into the tank collapsed and, although he was revived, one of his rescuers died.

In mild cases, symptoms of benzol poison consist of vertigo, tinnitus, nausea, slight flushing, and a condition resembling inebriation. Severe cases show symptoms of central nervous system affection, muscular tremors, spasms, livid clammy skin, nausea and vomiting, headache, severe dizziness, etc. If the condition is prolonged there are subcutaneous hemorrhages and hemorrhages of the mucous membranes, death resulting in a state of delirium, unconsciousness, and convulsions. Marked blood changes also

*Conference Board of Physicians in Industry. Organized for cooperative effort in introducing into industrial establishments the most effective measures for the treatment of injuries or ailments of employees; for promoting sanitary conditions in workshops; and for prevention of industrial disease. Report authorized by Drs. J. J. Moorhead, chairman, and Frank L. Rector, secretary.

occur, such as progressive reduction in the number of leucocytes, increase in the coagulation time of the blood, and rapid weak pulse. The reduction in hemoglobin and leukocytes is very marked, the hemaglobin measuring as low as 35 per cent, while the leukocyte count may be reduced to as low as 750. There is also a marked reduction in the number of red cells present.

The prevention of benzol poisoning consists in reduction in the use of benzol or the removal of fumes by artificial ventilation on the one hand, and rigid medical supervision of those exposed in any way, on the other. Less toxic solvents may be substituted for benzol in many operations. Ventilation should consist in a change of air at least thirty times an hour, forced in at the ceiling level and exhausted at the floor. Air velocity toward the floor should not be less than six feet per minute. If, however, the benzol is used in a warm solution, the air should be exhausted on a level with the working plane or slightly above it, as the warm fumes will not settle as readily as when cold.

Medical supervision should include a physical examination at least every four weeks in addition to a differential blood count, an estimate of the coagulation time of the blood, and a careful search for any indications of hemorrhage. Marked reduction in white blood cells or an increase in coagulation time should indicate a transfer to operations when benzol is not used. Especially susceptible individuals should not be employed where benzol is used. Treatment is largely symptomatic except that frequent blood transfusions seem indicated in chronic cases. Prompt removal from contact with benzol is always indicated.

It is realized that benzol will probably find an increased usage in industry because it is relatively inexpensive and highly solvent. It is felt, however, that its usage can be made relatively safe under certain conditions by a knowledge of its dangers, the use of proper ventilation, plus rigid medical supervision of those exposed. These facts should be carefully considered by all industrial physicians who in any way have anything to do with the use of this material in their manufacturing establishments.

Industrial Dentistry and Oral Hygiene

By R. I. HUMPHREY, D.D.S., Chief, Dental Department, International Harvester Company, Chicago.

In considering the subject of industrial dentistry and its value to general health, one experiences a sense of disappointment at the extremely bad condition commonly found in the mouths of people who are working in our densely populated centers. Only those dentists who have been engaged in industrial work during the past few years fully realize the extremely insanitary condition which actually exists. Oral hygiene among this element of our population has been so neglected that one sometimes wonders that the condition is not even worse than we find it to be. Many of these people are illiterate, and they are wholly uninformed in the field of oral hygiene. The importance of such a common operation as brushing their teeth has never been urged upon them, nor have they considered it necessary to consult their dentists for prophylactic or constructive dental care, except perhaps as the result of an emergency such as a pulpitis or an acute abscess. The only treatment many of them received on such occasions was the removal of the offending tooth.

In seeking an explanation of this most unhealthy condition, it is pertinent to mention the fact that more than 50 per cent of the employees whose mouth condition we have recorded are foreign born, and that more than 90 per cent of this number come from rural districts. From these findings it appears people of rural districts are considerably less informed regarding mouth hygiene, and more especially among the foreign born.

If preventive methods are to safeguard public health industrial oral hygiene needs to be added to the routine care we are now giving to the mouths of school children and to the service rendered better educated, more or less well-to-do people who are receiving periodic prophylaxis. We know that it is a comparatively simple matter to serve patients who have been taught the importance of oral hygiene from childhood, and who have the means to secure first class service. However, this is not the case in industrial groups. The industrial dentist must first in some way bring to the minds of the people he serves the importance of keeping the mouth clean, and it is this particular phase of the work which seems of greatest promise in industrial dental service. It is not a simple task to persuade all those adults with whom we come in contact to follow out a definite prophylactic program. However, the results of this work in the International Harvester Company have been encouraging enough to warrant the continuation of this service, and to supplement it by utilizing the support of more dentists in private practice.

Thus far the field of industrial dentistry has not received adequate support from physicians and dentists engaged in private practice. There are still a few private practitioners who hold that industrial work is robbing them of a livelihood, an untenable position, in view of the fact that the amount of constructive work it is possible to accomplish by men in industry is very limited, even though the number of dentists engaged in this type of work were many times greater than at present. Furthermore, the benefits which ultimately accrue to the private practitioner through the education of employees along this line is very considerable. Convince the head of the family that the care of the mouth is highly important and he will naturally insist that other members of his family be properly cared for.

The Teeth and Health

Physicians in industry are constantly coming in contact with chronic cases where oral hygiene has a direct bearing on the prognosis in the case. The close cooperation of physician and dentist in cases of this kind is absolutely necessary if satisfactory results are to be obtained. The cooperation that is possible in industry has demonstrated its value and is producing very remarkable results.

The following cases are typical of many which we have treated during the past six years:

Case No. 1.—Male, aged 35. Family and personal history negative. Patient complained of pain in muscles of neck and shoulders. Had not slept well for two weeks. Physician could find nothing which would account for the trouble. Oral examination revealed four [illegible] Extraction of the [illegible] was followed by the immediate disappearance of muscle pain.

Case No. 2.—Female, aged 41. Family and personal history negative. Patient had complained of pain in stomach two years prior to examination. Physician sent patient to hospital for

observation. Diagnosis was made of probable gastric ulcer. Diet was recommended and after a period of six weeks patient returned to work feeling greatly improved. The same trouble recurring in about six months, patient was sent to general hospital a second time for diagnosis, at which time all the findings were negative except that six teeth were abscessed. The teeth were extracted and the patient returned to work. In six months the patient had gained twenty pounds in weight. Three years have elapsed since treatment, during which time there have been no symptoms of the old trouble.

Case No. 3.—Male, aged 37. Family and personal history negative. Patient complained of excruciating pain in left thigh of two weeks duration. Physician's diagnosis, sciatica. Examination of mouth revealed extremely septic conditions, including pyorrhea, abscesses, and caries. All teeth were extracted. A very rapid improvement ensued and there has been no recurrent trouble during the past four years.

Much has been said regarding focal infections and its relation to general health, and in some cases perhaps there was some exaggeration. However, after handling several hundred of these patients, it is really astonishing to note the vast improvement that is uniformly registered in the general health following the elimination of mouth infection.

It is a somewhat debatable question as to just how far we should go in the way of restorative work in the industrial field, because conditions in different localities and in different industries are not the same. However, if the educational feature which always predominates is to become effectual, such service must be rendered as the immediate relief of pain, cleansing of teeth, extractions, abscess treatment, examination, and at least a limited amount of filling and plate work.

The two most vital points always to be considered by the dentist in industry are the prevention of pulp exposure and the prevention and elimination of peridental infection. When all is said, industrial oral hygiene does not differ from any other field of dentistry, in that it is always sought to render the maximum service. It has been the aim from the very outset of this most worthy movement to give the greatest service possible that is compatible with existing conditions.

It has been a source of considerable satisfaction to know that employers have co-operated very thoroughly in industrial dentistry and we hope that our dental organizations will take a more active and constructive attitude in helping us to render a better and more complete service to a mass of human beings who are badly in need of dental service, and who were almost entirely neglected until industrial dentistry was inaugurated a few years ago.

The Eight Hour Work Day

THE engineers who, after two years of effort, have just completed a national investigation of the problem of the twelve-hour day are convinced that more leisure will make the working man better off and that both employer and employee will benefit by the shorter day, which since the war has spread over Europe and is being introduced in Japan, Canada, Africa, and India.

Dr. H. E. Howe of the National Research Council, chairman of the committee on work-periods of the engineering societies which has investigated over forty continuous industries, states that the report which has been made on the twelve-hour shift in American industry under the auspices of the Federated American Engineering Societies will prove an unusual and valuable document for several reasons. It will be news to many people that there are still so many industries in which the long shift is in vogue. The report contains suggestions which should lead to extensive experiments in the near future.

"It is a novel suggestion," states Dr. Howe, "that in changing from two to three shifts in continuous industries the men be paid the same rate per hour, thereby establishing a basic wage equivalent to two-thirds their income on the longer day, and yet supplement this with a bonus graded upon performance, which would make it possible for the more proficient to make their income equal that before the change." Dr. Howe's statement follows:

The references made to the value of leisure ought to start many managers thinking along lines new to them, and give rise to considerations which may break down some of the prejudices against a change in the length of shift. It involves something of the spirit of service, for in many cases steps will have to be taken to teach labor the real value of leisure and the best ways of employing it.

That labor can earn something in leisure hours by doing for itself many odd tasks which are ordinarily paid for has not occurred to many, while the thought that the net gain

Underwood and Underwood.
Dr. H. E. Howe of Washington, chairman of the committee on work-periods of the Federated American Engineering Societies.

which results from leisure properly expanded is very well worth while to the employer will also be new.

Another observation which is noteworthy is that referring to the part which labor-saving devices and equipment in good condition play in making possible the increased intensity of operation which under proper management may be expected to give an increased production in three shifts over that in two shifts which repays extra cost. One cannot read the report carefully without realizing that any of these forward steps depend primarily upon capability and skill in management, no less than upon hearty cooperation on the part of both labor and management.

It may take a long while to bring many industries to the shorter shifts, and indeed there may always be some kinds of work on the twelve-hour basis. The committee responsible for the report very much hopes that the work presented may be a contributing factor in improving labor and social conditions.

One of the most gratifying results to the engineer, was the practically unanimous attitude of the press in commending the spirit of the inquiry, which had been carried out by the engineering profession solely with the aim of public service.

Horace B. Drury, formerly of the faculty of Ohio State University, who with Bradley Stoughton, chairman of the iron and steel committee of the American Institute of Mining and Metallurgical Engineers, directed the field work of the investigation, asserted that the change from the twelve to the eight-hour day, so far as it has been tried, "has secured results sufficient to compensate in whole and part for the extra cost involved."

Increased efficiency, he ascribed to "better physical and mental condition of the men, better class of men attracted, better conduct of operation, more uniform operation, better quality of product, less fuel used, less waste, less repairs to equipment and longer life of apparatus."

The eight-hour day, produces better morale, resulting in less absence and tardiness, less shirking and better discipline.

A New Instrument for Sampling Aerial Dust

Two methods of dust sampling that have in the past revealed serious inherent difficulties have been combined in a new device that promises the efficiency of impingment together with the analytical advantages of a liquid sampling method. This ingenious yet simple apparatus is the invention of Leonard Greenburg, assistant sanitary engineer (R), U. S. Public Health Service and George W. Smith, junior physical chemist, U. S. Bureau of Mines. The following description of the impinger and account of the preliminary test appeared in a recent report of investigations, issued by the U. S. Bureau of Mines.

The Bureau of Mines and the Public Health Service, cognizant of the importance of dust in the causation of pulmonary disease, have conducted numerous studies on the quantity and nature of dust in mine and factory air. Several of these studies have appeared as technical papers of the Bureau of Mines, and as contributions to the weekly reports of the Public Health Service.

For the purpose of sampling the dust in the air, the Bureau of Mines has made use of the sugar tube method. Briefly, a sugar tube consists of a glass tube 2⅜ inches in diameter and 5½ inches long, one end of which is constricted to ⅛ inch outside diameter, for connection to an air pump by means of suitable rubber tubing. In the glass tube is placed a layer, 1½ inches deep, of sized granulated sugar weighing 100 grams. By means of a suitable pump, air is drawn through the sugar tube at a rate of approximately 1 cubic foot per minute. The dust is retained in the sugar tube, which is then stoppered and sent to the laboratory for analysis.

The Public Health Service makes use of the Palmer water-spray apparatus for the sampling of dust. This method consists essentially of a motor with an exhaust fan to which is connected a pear-shaped glass bulb, at the base of which is a water trap. Approximately 40 c.c. of distilled water is placed in the trap. When the motor is started, air is drawn through the water seal, thus breaking the water into a spray, which washes the dust from it. A Pitot tube registers the rate of air flow, which is controlled by means of an outlet valve at the top of the instrument. After a suitable quantity of air has been sampled, the water is removed to a flask and sent to the laboratory for analysis.

A third type of instrument devised by one of the members of the South African Miners Phthisis Commission is now engaging some interest in the United States. This is known as the Kotzé konimeter. It consists of an air cylinder and piston actuated by a spring, and is so arranged that on release of the piston a known volume of air is impinged at high velocity against a vaselined plate. The dust spot so produced is examined under the microscope, and count is made of the number of particles, but with this instrument no estimate can be made of the weight of the dust present.

The apparatus that the authors have devised, and a description of which follows, makes use of the principle of impingement of the dust-laden air at high velocity on a wetted glass surface, together with that of bubbling the air through a liquid medium. This apparatus consists essentially of three parts; a hand pump or electrically driven blower; a flow meter, or other suitable means of measuring the air passed through the instrument; and the dust-collecting device.

The dust collector consists of a conical tall form, flat-bottomed assay flask or precipitating jar of 500 c.c. capacity, provided with a two-hole rubber stopper. In one of these holes is fitted a suitable outlet tube which is connected with the flow meter, and the latter in turn is connected with the exhaust apparatus. In the second hole of the rubber stopper of the dust collector is placed an impinger tube (of glass in the present type, but this may later be changed to a non-corrosive metal) ⅝ inches in diameter and 9½ inches long. This tube is open at the upper end, and is provided with a flat bottom. The bottom is pierced by 15 holes, each approximately 0.8 mm. in diameter. Projecting from the bottom of the tube at its periphery are three lugs each 0.8 mm. long, the purpose of which is to keep the bottom of the tube always 0.8 mm. from the bottom of the flask.

Manipulation of the instrument during sampling is easy. At the laboratory enough sampling flasks are cleaned thoroughly and filled with distilled water to the graduation mark (at present 300 c.c.). These flasks are then stoppered and taken to the place at which samples are to be collected. The apparatus is set up and the sampling is begun by starting the pump. After a sufficient length of time determined by judging the amount of dust in the atmosphere, the pump is stopped and the impinger tube stopper is removed. This tube is rinsed with a small quantity of water which is allowed to drain into the sample just taken. The flask is stoppered, and is now ready for the laboratory examination.

The efficiency of this dust sampler has been tested by an apparatus, in use at the Bureau of Mines experimental station; so constructed that air laden with dust or tobacco smoke may be passed through it and a comparison obtained between the incoming and outgoing air. The quantity being known of the dust-free air necessary to dilute a sample of the ingoing air to make it match, by Tyndall effect, the air emerging from the sampler, an efficiency rating for the sampler tested may be obtained.

When tested with tobacco smoke in the manner described above, this apparatus was found to have an efficiency of 66 per cent. In a similar manner it was tested against silica dust, a majority of the particles of which were under one micron in diameter. In this test the apparatus developed an efficiency of 93 per cent. The apparatus was then tested against silica dust on a gravimetric basis and the emergent air was filtered through a Whatman No. 42 filter paper. The dust in the flask was then filtered through a Gooch crucible and weighed. On the basis of the weight of the material on the filter paper (known to be 95 per cent efficient against this particular dust and making a correction for this) the dust sampler proved to be 96 per cent efficient.

In Technical Paper 278, of the Bureau of Mines, tests similar to the above are quoted on the standard type sugar tube of the Bureau of Mines. These results are clearly brought out in the following table.

EFFICIENCY, PER CENT

	Impinger	Sugar tube*
Smoke test, optical	66	5
Silica test, optical	93	75.6
Gravimetric silica dust	96	87.1

*Approximate averages.

The analytical procedure necessary when using this new impinger-bubbler apparatus is almost identical with that employed with the Palmer apparatus. As sugar is not employed, the new apparatus possesses the advantage over the sugar tube method in having very low control errors, being, therefore, much simpler in laboratory manipulation during analysis.

Studies are being continued on several of the factors entering the design of this instrument with a view to determining its value for general industrial and mine use.

A study of social activities [illegible] and junior high schools is being made by Alice F. Cullen, 141 West 13th Street, Oswego, N. Y. According to announcement in the *Journal of Education*, Miss Cullen will be glad to receive information from others interested in the subject.

Recent Compensation Decisions

By DOROTHY KETCHAM, Director, Social Service, University Hospital, Ann Arbor, Mich.

OCTOBER 17, 1916, John Watson sprained his left ankle while in the employ of the defendant. He was treated, an infection followed, two operations were performed and finally in May 19, 1919, when a post mortem examination was performed, a tuberculous condition and a pus cavity were found in the injured ankle bone. After his death the widow made application for further allowance. The Supreme Court of Pennsylvania, March 6, 1922, in passing on the case, declared that Watson died within the period of 300 weeks specified in the statute and, "if his decease was attributable to the injury received, his widow is entitled to compensation." It is "evident that Watson was suffering from disease (though apparently in good health) at the time of the injury and the immediate cause of his death was tuberculous peritonitis. It was hastened, however, by the osteomyelitis which developed in the left ankle. Indeed, the post mortem examination of the bone showed death might have resulted from the infection of the foot alone, though Watson had not been in bad physical condition."

The judgment of the Workmen's Compensation Board was affirmed.—*Watson v. Lehigh Coal & Navigation Co. 116 A. 889.*

THE deceased was afflicted with incipient tuberculosis of the lungs in the fall of 1917. He left for a time and returned, resuming work for the defendant employer. On May 1, 1918, he fell from a staging, worked at intervals until June 10, when hemorrhages developed and labor ceased. The tuberculosis became active and he died April 4, 1919. The question is whether in fact death did ensue as a result of the injury, which the chairman so found upon what constituted some competent evidence, drawing reasonable inferences from proved facts. The award of the Industrial Accident Commission was affirmed by the Supreme Judicial Court of Maine, June 8, 1922. —*Jacque's Case, 117 Atl. 306.*

TO recover compensation for an employee's death under the Workmen's Compensation Act, it is not only necessary to show that death resulted from an injury in the course of employment, but also that death resulted from injuries arising out of employment, according to a decision of the Court of Appeals of Maryland, January 10, 1922.

Victor Webster was employed as a carpenter upon a vessel in construction by the Shipbuilding Company. Webster was employed on one of the top decks. "It was while there that he fell from said deck to the ground below, causing a compound fracture of the left side of the skull, extending to the back of the brain, from which injury he died on the same day, . . . while rising up from laying down tools, (he) stepped on a rivet, which caused the patient to fall backward off the ship, falling a distance of 45 feet, striking his head, below."

The U. S. Fidelity & Guaranty Company in contesting the claim of compensation awarded by the State Industrial Accident Commission declared that:—(1) the injury did not rise out of or occur while in the course of employment; (2) that the death was not the result of an accident. Among other things the appellant asked two questions: "Was the death of Victor Webster on the 20th day of April, 1920, due to a fall occasioned by a vertigo or epileptic fit? The court declined to answer the question because its determination was not material to the decision of the case. To a second question: "Was the death of Victor Webster on the 20th day of April, 1920, occasioned by an injury received in the course of and growing out of his employment," the reply was "Yes." The appellants' prayer asked the court to declare the law that if the death was the result of a fall occasioned by a vertigo or epileptic fit, "then the verdict must be for the defendant, notwithstanding that the court further found that he was engaged in work at the time, growing out of and in the course of his employment."

This prayer was refused by the court. The appellants conceded "that the decedent at the time of his death was engaged in an extra hazardous occupation, and that his death resulted from an accidental personal injury sustained by him in the course of his employment," but they deny that his death resulted from an injury arising out of this employment. To entitle the claimant to compensation it was not only necessary that it be shown that death resulted from an injury sustained by the employee in the course of his employment, but also that his death resulted from injuries arising out of his employment.

The refusal of the prayer denying compensation, if the vertigo or fit "contributed" to the fall, was held proper, since the injuries caused by the fall may have arisen out of the employment, even though the vertigo or epileptic fit contributed to the fall. "We have found no cases in which the claimant has been refused compensation when the accident resulting in injury or death of the employee was not caused solely by the physical disability of the employee, or where it contributed only to the accident."—*Baltimore Dry Dock & Shipbuilding Co. v. Webster, 116 Atl., 842.*

THE Court of Appeals of Kentucky, May 9, 1922, held that an employee who was engaged in felling a tree assumed the risk of being injured from the fall of such tree, although he was deaf, in the absence of an allegation that his mind was affected or that his eyesight was impaired. — *Mocabee v. Horbesen Walker Refractories Co., 240 S.W. 380.*

AN INJURY which aggregates a chronic appendicitis has been held compensable by the Supreme Court of Michigan, June 5, 1922.

A laborer in a foundry was assisting in pouring molten iron. The ladle slipped and the plaintiff was so wrenched or jerked that he developed a pain in the region of the appendix. The first attendant physician declared the man overcome by the heat of the foundry room and treated him accordingly at the hospital. Later another physician was called in and treated him for appendicitis and operated. The finding of the board concerns "An accidental personal injury under the act, from the testimony of the plaintiff and his fellow workmen. . . . The finding has evident support and is therefore sustained." The facts that the plaintiff's disability "may have resulted from the accidental aggravation of a chance ailment, and that he may have been predisposed because of disease to this form of attack, have nothing to do with the question of whether what befell him is to be regarded as an accident."—*Fritz vs. Rudy Furnace Company, 188 N.W. 528.*

Better Hours for Labor

IN trend with the recognition of the evils of the long working day and the seven-day week is the statement of John D. Rockefeller, Jr., in the November *Survey Graphic*.

Mr. Rockefeller denounces the twelve-hour day and the seven-day week and states it as his belief that the eight-hour day and six-day week should be adopted as the labor standard. His statement follows:

I believe that generally speaking the twelve-hour day and the seven-day week should no longer be tolerated in industry, either from the viewpoint of public policy or of the industrial efficiency; I believe that both have been proved to be unnecessary, uneconomic, and unjustifiable. As a matter of general policy, subject only to the demands of occasional emergency, modern industry is justified in accepting the eight-hour day and the six-day week as a labor standard toward which all parties interested should steadily press. Even in those industries where the continuous process is an inevitable feature, the routine should be so adjusted that the employees can have at least one day's rest in seven and can obtain that share of leisure for self-development which accompanies the workday of approximately eight hours. While the adoption of these standards may and doubtless will at first entail increased costs of production, I am confident that in the long run greater efficiency and economy will result, and that from the outset public opinion will support any industry which installs them. The same sentiment will eventually bring into line the less scrupulous and less enlightened elements in every competitive industry.

With regard to living conditions there can be even less room for argument or division of opinion among men of clear vision and humane mind. Even in isolated locations like mining camps, it is not only possible but necessary that reasonable provision should be made for the health, comfort, and contentment of those who may labor there in behalf of the entire community. The oil fields, to be sure, suffer difficulties even greater than the coal mines, being not only temporary but speculative in their output. Even with this allowance the environment is certainly subject to amelioration and to such provision for home and recreation life as will promote the well being of all those concerned.

I have never believed that these things should be provided for working men and women either as a result of chance generosity or deliberate paternalism. Quite aside from the fact that, in my judgment, they represent the soundest economic policy, they are due the employee as a matter of common justice, required by the basic fact that man is a human being first and a member of industry afterward. As a private citizen and individual stockholder, I have never hesitated to state my position on these points with all the clearness at my command. I have not wittingly lost an opportunity—so far as a minority stockholder may do so—to reinforce my position on the general policy with action that would be most concrete and adequate. I have done so, moreover, where changes urged by me involved competitive burdens and consequent anxiety to responsible managers, but I have never seen reason to regret any advance thus obtained or to modify the grounds on which they were urged. On the contrary, I would reaffirm the belief that sooner or later all such added burden is balanced by the increased efficiency and contentment of the laboring force and that less generous directors of industry in due time will inevitably follow the same course, if not through choice then under compulsion of public opinion.

In pursuance of this policy, some of the problems which have to be faced and many of the evils which should be removed are deeply rooted, sometimes within the processes of an entire industry. To my mind, however, where the right course is clear, difficulties in the way do not excuse inaction, but rather should inspire a more vigorous determination. So far as concerns the discharge of my own responsibility as a stockholder for better industrial conditions and relations, I have made special provisions for assistance in just such tasks as these, which are sometimes onerous, often perplexing, but always close to my heart. To that end I welcome every aid from whatever source, as men of like mind and common purpose try to raise industry to a level of public service and thereby to make the world a better place for all men to live in.

Atmosphere and Comfort in Work Hours

More care should be taken to arrange atmospheric conditions in factories to suit the nature of the work being done. The heavier the work, the higher will be the cooling power of the atmosphere required to maintain comfort. Observations made in many workshops where vigorous muscular work is done show that the cooling power of the atmosphere as measured by Hill's kata-thermometer was far too low. In these shops covered by recent experiment no one seemed interested in the matter and no one was sufficiently skilled to regulate the ventilation in order to produce a suitable cooling power.

In the current issue of the *Journal of Industrial Hygiene*, Leonard Hill and J. Argyll Campbell report a series of physiological experiments which prove that more attention should be paid to the atmospheric conditions in work rooms. The matter is much more important than is generally appreciated because most of the experiments heretofore recorded have been carried out with the subjects very lightly clothed and in atmospheres not under such ill-ventilated conditions as obtained in the average workshop. Under perfectly controlled conditions Hill and Campbell recorded the efficiency of the subject as measured by output, studied the energy expenditure in a given amount of work, and correlated the pulse rate and general comfort of the subject with a cooling power of the atmosphere. They conclude that cool conditions have great advantage over warm conditions, mainly because the heart is given less work to do, and bodily comfort is maintained when the cooling power is high. Some attention also was given to the cooling power that is required to maintain comfort at a given rate of work. They consider that the main advantage of cool conditions is in relief to the heart and that such relief keeps off fatigue and enables the individual to work longer hours in comfort and content.

Vision: Its Relation to Industry

The need for protecting the eyes of the worker is sufficiently attested by the fact that approximately fifteen thousand persons in the United States, or about 13.5 per cent of the total blind population, have been rendered blind by industrial accidents. The actual economic loss from the incapacitation of this large group cannot be estimated. The eye is involved in 10.6 per cent of all permanently disabling accidents. Preventive methods strictly applied would materially reduce eye accidents.

Dr. Earle Fowler discusses in the *Iron Trade Review* means of prevention which in the American Steel Foundries factories have reduced eye accidents by 85 per cent. In working with commercial illuminant the amount of ultra-violet energy is not sufficient to make essential the wearing of special goggles. This protection is required in the oxy-acetylene process in steel making. The cobalt blue glasses often relied upon are not sufficient protection. The wearing of goggles is usually considered irksome by the workers, but their use is a most valuable protection. First aid services in factories where eye accidents are prone to occur is an important provision.

Eyework produces fatigue, the most

largely contributing factor being defective vision. An examination by a specialist of the eyes of ten thousand employees in various industrial and commercial establishments showed 53 per cent with uncorrected faulty vision. Another inquiry referring to 675 workers showed 58 per cent in need of glasses. Another study revealed that only 22 per cent of three thousand employees had normal vision. Twenty-one per cent of army recruits had to be discharged owing to eye defects. The industrial output of such cases is greatly decreased.

Prophylaxis consists in the provision of good lighting conditions. The placement of light as to sources and its diffusion has an immediate effect in the welfare of workers and in their output. The cost of good lighting would not exceed 0.5 per cent of the whole wages of industry in the United States, and expenditure in this direction could be expected to result in a positive increase of output.

Safe Practices in Underground Ventilation

A recent report of investigation by R. R. Sayers of the U. S. Bureau of Mines gives the following summary of procedures useful in minimizing the hazards to which the underground worker is exposed:

(1) Miners who work in mines in which the rock contains a high percentage of silica and use dry mining methods have been found to be prone to pneumonoconiosis. (2) Miners' phthisis or pneumonoconiosis has been found to dispose to tuberculosis. (3) Good ventilation, wet drilling, and wet mining methods materially lessen the amount of pneumonoconiosis. (4) Physical examination at regular intervals, at least once a year, followed by proper precautions by those found to be affected by pneumonoconiosis or tuberculosis materially lessens their prevalence. (5) Some dusts, as those from the more soluble lead, zinc, or arsenic ores, may cause illness due to the toxic effects of the respective salts of these metals. The precautions mentioned in paragraph 3 are applicable here. (6) Air low in oxygen causes deeper and more rapid breathing and an increase in heart rate. If sufficiently low, unconsciousness or even death may result. (7) The flame of a safety lamp may be used to detect air low in oxygen. (8) Increased percentages of carbon dioxid in the air cause an increase in the depth and rate or respiration, headache, dimness of vision, and tremor. (9) Carbon dioxid may be detected and the amount present determined by a special portable apparatus developed for this purpose. (10) Nitrogen, hydrogen, and methane have no toxic effect on the body but may act as dilutents of oxygen and thus indirectly cause the effects of oxygen deficiency. (11) The flame of the safety lamp, or a Burrel detector, may be used to determine the presence of marsh gas. (12) Hydrogen sulphid and sulphus dioxid may occasionally occur in mines in sufficient quantities to be dangerous. In low concentrations they cause irritation of the eyes and respiratory organs. (13) The presence of hydrogen sulphid and sulphur dioxid may be detected by their respective characteristic odors. (14) Carbon monoxid (white damp) has caused the death of many miners. (15) The presence of carbon monoxid may be detected by its effect on canary birds or by the use of a carbon monoxid detector. (16) Animals without red blood are not affected by carbon monoxid. (17) High temperatures and humidities decrease the efficiency of miners and probably have a deleterious effect upon their health. (18) Good ventilation will prevent the ill effects of all gases referred to in paragraphs 6 to 17, inclusive.

Health Survey of the Printing Trades

A health survey of the printing trades has been authorized by the International Joint Conference Council, representing both employers and employees. The Survey is intended to cover two years and will be nation-wide. The work will include a thorough study of printing processes in their relation to health and of printing house conditions, possibly more or less detrimental to health and life. The investigations will be carried on in cooperation with a large number of governmental, scientific, and corporate organizations, including the United States Bureau of Labor Statistics, which will have charge of the major portion of the social and economic inquiries.

A large measure of cooperation is expected from the insurance companies, but especially from Harvard Medical School, Yale Medical School, the public health school of Johns Hopkins University and a number of state health and labor departments. Particular emphasis will be placed upon methods of ventilation, air-polution, lighting, eye-strain, posture and physique. The investigation will be made under the immediate direction of Dr. Frederick L. Hoffman, dean of the advanced department of the Babson Institute, Wellesley Hills, Mass., and the consulting statistician of the Prudential Insurance Company of America.

Acute Rheumatism a Working Class Disease

The seriousness of acute rheumatism and its consequences is not generally appreciated. It is undoubtedly one of the great killing diseases, according to Robert Hutchinson, writing in the *Lancet*, not so much directly, though the immediate mortality of cases with carditis is very considerable, but indirectly through the permanent damage so often done to the heart. Apart from its effect on the death rate, acute rheumatism is the cause of an immense amount of disability. The observations of Dr. Hutchinson are particularly interesting as they bear upon rheumatism as affecting particularly the industrial worker. He states:

Acute rheumatism is essentially a working-class disease; I could count upon my fingers the cases I have seen in consultation in twenty years, whereas my wards both at the London Hospital and Great Ormond Street are always full of it. This special incidence of the disease has been pointed out before, but I can offer no explanation of it. In common, I suppose, with most of the profession, I now regard acute rheumatism as an undoubtedly infective disease, due to infection with one or more forms of micro-organism. But although infective it is certainly not infectious, and it is difficult to believe that over-crowding or defective nutrition can act as predisposing conditions. Inadequate clothing or sitting in school after getting wet may more probably have something to do with it, but even this explanation does not seem adequate. It has been suggested that the greater incidence among the working classes is more apparent than real, and due to the fact that the earliest signs of the disease are more promptly recognized in well-to-do families, with the result that it is nipped in the bud and does not go to the stage of serious manifestation; there may be something in this explanation, but again I am doubtful whether it covers all the ground. The fact remains that those who practise in industrial communities see most of the disease; those who labor at the other end of the social scale rarely meet it in a severe form.

The use of hydrocyanic acid has been forbidden by a decree in Germany.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Window Ventilation Preferred for Schools

New York State Commission Issues Final Report on Air Conditioning

By C.-E. A. WINSLOW, Chairman, New York State Commission on Ventilation.

THE New York State Commission on Ventilation was appointed by the Governor of New York June 1913, on the request of the New York Association for Improving the Condition of the Poor. The work of the commission was made possible by the assignment to its use of the sum of $50,000 (later increased to $75,000) out of a munificent gift made to the association by the late Mrs. Elizabeth Milbank Anderson.

The members of the commission, all of whom served without pay were: Mr. D. D. Kimball, ventilating engineer, Prof. F. S. Lee, professor of physiology in Columbia University, Dr. J. A. Miller of the Bellevue Medical School and Hospital, Prof. E. B. Phelps of the Massachusetts Institute of Technology and later chemist of the U. S. Hygienic Laboratory in Washington, Prof. E. L. Thorndike, professor of psychology in Columbia University, and C.-E. A. Winslow, professor of public health, Yale School of Medicine. Its objects were "to examine and investigate the subject of ventilating systems in the public schools and other public buildings of the state, and the proper installation of the same to the end that a thorough and effective system, which will assure an adequate supply of fresh air, under the best conditions, will be maintained." In his statement in regard to the appointment of the commission Governor Sulzer pointed out that "the problem is far from simple." He continued, "It is much more than an engineering problem, for the best scientific experts have not determined what conditions should be met by the engineers. Even the most fundamental facts which must lie at the basis of any efforts to ventilate our school buildings, have not been scientifically determined by any experiments which have been made thus far. It is not known, for example, and cannot be known without more adequate experiments than have been possible up to this time, what temperature should be maintained in public school buildings. Indeed, it has not even been proved whether a constant temperature or a varying temperature is more beneficial. We do not know scientifically what degree of humidity should be maintained in our schoolhouse.

"I am informed also that it has not been proved what amount of carbon dioxid in the air is possible before the air becomes detrimental to health. In other words, there is no scientific proof for some of the most fundamental factors involved in the problem of ventilation. On the other hand, I have been assured that if careful scientific studies were made with the express purpose of measuring some of the unknown factors, such studies could be reasonably expected to put us in possession of data which would enable the scientist to tell us with some degree of accuracy what those fundamental conditions are which should be maintained in schoolrooms if they are to be beneficial to the health of children."

The experimental work of the commission began in the summer of 1913 and continued for almost exactly four years. It was completed in the spring of 1917 and the staff, G. T. Palmer, chief and Joseph Herzstein, secretary, were just beginning the final analysis of the results when war was declared and both commission and staff were immersed in more pressing duties. The data have been at last digested, however, and prepared for publication and the final report of the commission will appear during the coming winter.[1]

The work of the commission dealt with two main problems, first with the physiological question of what constitutes ideal ventilation, and second with the engineering question of how best to secure such an ideal condition in the school room.

The conclusions of the commission in regard to the first problem have been to a considerable extent made public in various preliminary communications and need only be summarized briefly at this time. They were based on extensive experiments, most of which were carried on in two chambers especially equipped by the commission for the purpose in rooms provided in the College of the City of New York by the college authorities.

The main experiments involved a study of the effects of air temperature, air humidity, and fresh and stale air. The temperatures studied were normal temperature 68°, moderately high temperature 75°, and high temperature 86°. The humidities studied were medium, 50 per cent saturation, and high, 80 per cent saturation.

The observations which were made on the subjects by a staff of specialists were extensive in type as well as in number. The physiological obser-

[1] E. P. Dutton Co., New York.

vations included records of changes in body temperature, blood pressure, heart rate, and respiration. In certain special studies, observations were made on the amount of heat produced by the body, the chemical content of respired air, and the air in the lungs, the duration of digestion, and the condition of the blood. An important series of experiments was conducted to determine the effect of air conditions on the appetite.

In addition, studies were made on physical efficiency by means of a stationary bicycle and weight lifting apparatus. Psychological observations were similarly made through exhaustive tests measuring memory, judgment, power of attention, and certain other performances like typewriting, addition, and mental multiplication. Besides the observations mentioned above, a special study was made of the effect of various atmospheric conditions on the membranes lining the nose and throat; and still another series of tests was made on animals to determine the effect of heat and cold on their resistance against infection.

These studies indicated that while both the physical and the chemical characteristics of air may to some degree affect health and efficiency, the physical condition of the air, particularly as it relates to its temperature, is the factor of prime importance in practical ventilation.

Moderate and high temperatures, 75° and 86°, especially when combined with high humidities, tend to interfere with the normal function of heat loss which gives rise to discomfort. A burden is thrown on the heat regulating mechanism with a resulting increase in body temperature, an increase in the rapidity of the heart rate, an increase in the rate of breathing, and a fall in the general tone of the circulatory system. Besides, overheating considerably depresses the ability to perform physical work. Our subjects did about 85 per cent as much physical work under optional conditions at 75° as at 68° and at 86° the work performed fell to 72 per cent. In addition, overheating leads to an abnormal reaction of the membranes of the nose, harming them permanently if long continued. Even after a comparatively short exposure when followed by a chill, it seemingly leads to conditions favorable to bacterial invasion of the air passages. Overheating when followed by a chill also tends to weaken the defensive forces of the body which are brought into play in coping with an invasion of infectious disease organisms, as shown by animal experiments.

The humidity of air, which is another of its physical characteristics, is also of importance in that a high moisture content of the air, especially when the air is warm, militates against heat loss through the evaporation of water from the skin. A high humidity will therefore reinforce the harmful action of a high temperature. On the other hand, low humidities which have been accredited by many with being responsible for all kinds of mischief, were not found to interfere with comfort, nor to induce nervousness or irritability, in a series of careful tests extending over a period of four months. The subjects were girls exposed to relative humidities of 33 and 50 per cent for five days a week, the temperature being 75°.

The chemical conditions of air have been found to exert a secondary effect on the body as compared with the physical conditions. The air of a room without any fresh air supply, containing the odoriferous constituents arising from respiration and from the bodies of the occupants, was found to have no demonstrable effect whatever on comfort, body temperature, rate of the heart, blood pressure, respiration and certain other carefully observed physiological functions. This air contained also large amounts of carbon dioxid. Further, freshness or staleness of air exerted no different effect on mental efficiency, the subjects doing as well in stagnant air as in fresh air.

In but two ways did stale air manifest itself as productive of a real and somewhat immediate effect. As compared with fresh air at the same temperature, vitiated air reduced the performance of physical work by 9 per cent. The second and more important effect was on the appetite for food. The appetite was found to be measurably and definitely decreased as a result of breathing stale air. This effect is not to be minimized in view of the probably significant effect on nutrition which might result from a diminished appetite for food extending over a long period of time.

It is concluded from the experience of other investigations and from the extended researches of the commission that the primary essential for good ventilation is the maintenance of a proper air temperature, of 68° or below, but without the production of chilling drafts. At the same time, there should be an air change sufficient to avoid the accumulation of odoriferous or other substances arising from human occupancy.

The results indicate that in practical ventilation a good air supply and a room temperature of 68° are desirable. A bounteous air supply in the face of high temperature and overheated air is of less importance and likely to produce more harm than a moderate air temperature of 68° with a less lavish air change.

From the practical standpoint of actual air conditioning in the schoolroom the following types of ventilation were studied most exhaustively since they were either in actual use or seemed practicable and promising: (Method 1) rooms ventilated entirely through the use of windows; (Method 2) rooms to which fresh air was admitted by windows and from which vitiated air was removed by gravity exhaust ducts; (Method 3) rooms ventilated by means of fans to force air into the rooms, supplemented by a gravity exhaust duct through which air might find its own way out; (Method 4) rooms ventilated by means of fans both for forcing air into the rooms, through special ducts, and for exhausting it from the rooms, the same air being supplied to the room over and over again, after being re-conditioned before recirculation.

The first method, consisting of window ventilation alone without any provision for facilitating ingress or exit of air other than those ordinarily found in a classroom, such as windows, doors, transoms and natural crevices, was found to be unsatisfactory. It gave rise to inadequate aeration, odors, local drafts, and too great a variability of temperature in different parts of the room. It provided comfortable conditions only in mild weather, when liberal use of windows, doors, and transoms was made.

Method 4, involving the use of recirculated air, was studied at the Y. M. C. A. college gymnasium, Springfield, Mass., in certain schools in Minneapolis, and, more exhaustively during 1915 and 1916 in our specially equipped experimental school rooms at School 51, the Bronx. The use of re-circulated air exerted no harmful effects upon either the physiological or the psychological condition of the school children.

From the practical and esthetic side, however, it was observed that the air washing which was necessary in the recirculating system failed to remove odors. On nineteen days, deodorization was attempted by means of ozone. This not only failed to remedy the situation, but made matters worse. The recirculated air was odorous and generally disliked, and gave rise to conditions certainly less attractive than those found in ordi-

narily fan ventilated rooms or in window ventilated rooms of the same building.

While the economic aspect of re-circulating air is conceded, since through its use for some five months in the cold season one-half the fuel expense can be saved, the unsatisfactory atmospheric conditions resulting even from a very carefully controlled system, deter the commission from recommending it as a general practice.

Of all the methods studied, during the early studies of the commission at Springfield, Mass. and in New York City in 1915-1916 the two which most consistently gave satisfactory results were—Method 2, window supply, gravity exhaust; and Method 3, fan supply, gravity exhaust.

The rooms with fan ventilation (Method 3), while well aerated, did not prove as satisfactory as the rooms with window ventilation and gravity exhaust. The window-ventilated rooms seemed fresher and freer from odor and were more comfortable as to temperature. One of the significant findings was that in the window-ventilated rooms the zone of comfort was at a slightly lower temperature than the corresponding zone for the fan-ventilated rooms.

During the following school year, 1916-1917, another four months' study was conducted to probe deeper into the relative merits of window ventilation and fan ventilation, or, in other words, natural versus artificial ventilation. In this investigation, the most extensive and carefully controlled of the practical schoolroom ventilation studies made, fan and window ventilated rooms were compared in several rooms of each of three large school buildings. Three to four schoolrooms of each type of ventilation were selected in each school and detailed observations were made on almost one thousand regular school sessions throughout the morning and afternoon. In addition, more general observations were made on 322 other sessions in other fan ventilated rooms of these same buildings.

In the first of the schools studied, the fan ventilated rooms, as in many earlier studies of the Commission,

In the second school, the conditions in the fan and window rooms were approximately the same as to physical and chemical conditions. The observers' impressions of both types were about the same, pointing to the practicability of effective schoolroom ventilation by means of either windows or fans. However, as tending to favor the window ventilation method, the records of daily votes show that the teachers registered many more complaints about conditions in the fan rooms than in the window rooms. They liked the air conditions less and found the fan rooms more frequently too warm, or draughty or stuffy.

In the third and last school which was situated in a very congested district in the poorer section of the city, the ventilation in the fan rooms was distinctly superior. The window rooms were frequently too warm, owing to defective control of the radiators by the thermostats. The window rooms were found to be frequently malodorous. The proximity of a stable favored odoriferous conditions in these rooms.

Window or Fan Method?

The survey indicated that while window ventilation may at times prove unsatisfactory, yet in other instances it compares most favorably with the more elaborate system of fan ventilation, despite the fact that window ventilated rooms have actually a lesser amount of aeration. The general preference which seemed to exist for window rooms appeared to constitute a specific and apparently important difference between the two types of ventilation. The reason for this preference appears to be as follows. Stronger and steadier and more constant currents of air at a higher temperature exist in the fan ventilated rooms; and in order that the cooling effect of the relatively rapid movement of air upon the face shall not produce a sensation of uncomfortable coolness, the air of the room must consequently be maintained at a slightly higher temperature than that maintained in window ventilated rooms where the air flow is less. The walls are somewhat cooler in the window rooms and since active air currents do not here exist to carry off the body heat, the heat loss of the body is more largely effected through radiation. The variable to-and-fro pulsating movement of the air, while not necessarily perceptible as a breeze in the window rooms, seems nevertheless productive of a sensation of comfort, and the lesser air change permits a somewhat cooler air atmosphere to envelop the body without producing a sensation of excessive coolness on the face. This condition is secured, to be sure at the expense of a complete air flushing, but nevertheless with an amount of air change which is sufficient, in general, to remove odors and to ensure really comfortable conditions.

In order to make sure that the general preference expressed for window ventilated rooms, both by teachers and by the observers employed by the commission was not based on any preconceptions we conducted a special study in which squads of high school girls were blindfolded and led into rooms ventilated in various ways without any knowledge as to what the actual modes were. Ninety-six subjects were used in all, 24 at a time, each squad serving for one month. After exposure to the air of a given room each girl recorded by a symbol which she could write while blindfolded her sensations as to the atmospheric conditions. In general window-supply, gravity-exhaust rooms (Method 2) and fan-supply gravity-exhaust rooms (Method 3) were compared. We attempted with reasonable success to keep the conditions in both rooms as nearly alike as possible. The average room temperature for both types of rooms for the entire experimental period were only a third of a degree apart. While, however, the temperatures in the middle of the fan rooms and the window rooms were alike, the floor temperature and temperature in the aisles of the window rooms were slightly below those of the corresponding fan rooms. This was due to the greater air flushing in the fan room, which is assured through the use of the fans and which characteristic of fan ventilated rooms makes for a more equable level of temperature throughout the room. The chemical analysis of the air also indicated a superior air flushing of the fan rooms. The de-heating action of the fan room air was greater than that of the window rooms. In other words, the greater air motion of the fan rooms favored body heat loss by tending to displace effectively the layers of air close to the body, to which the body would impart some of its heat.

Turning now to the records of the sensations of comfort of the subjects, in no way influenced by the psychological effect of open or closed windows, light or darkness, favorite locations, the view outdoors, etc., we find that the window ventilated rooms were prefered. They were generally regarded as being more comfortable, and were voted fresher, less odorous, much less stuffy, and less draughty. The window rooms seemed cooler than the fan rooms, apparently because there was a greater difference between the temperature at the floor and at the level of the head when the subject was seated. Although the fan room was more effective in re-

moving body heat, it was obvious that comfort went with coolness, due to lower temperature and less air motion, rather than with air at a higher temperature, having a more rapid movement.

Effect on School Health

Finally, we conducted during the two winters of 1915-1916 and 1916-1917 an exhaustive study on the effect of school ventilation upon the health of children, a study made possible by the cooperation of the bureau of child hygiene of the New York City department of health. The scope of the study can be indicated by citing the following: The work was carried on for twenty weeks, and involved 5,500 school children in 12 different schools, 58 schoolrooms being studied during February, March, and April, 1916, and 76 schoolrooms during November, December, and January, 1917. Twenty-three nurses gave all their time to the work of following up the children.

Essentially, three types of schoolrooms were compared, namely, rooms ventilated by means of fans with windows closed, rooms ventilated by means of windows and gravity exhaust; and window ventilated rooms, which were maintained at a much lower temperature than was usual, so that actually the effects of three different air conditions were investigated, (a) a cold, (b) a normal window room, and (c) a normal fan room.

The schools were located in various sections of the city, and the race, sex, age, and social make-up of the groups exposed to the various types of ventilation were carefully analyzed to see that no essential differences existed which might unduly influence the results. It might be stated that the children in the fan rooms happened to be the group of somewhat better social status than the others, and also of a presumably healthier race stock. In addition, the fan rooms had relatively least congestion.

The actual ventilating system used in the fan rooms typically exemplified the practice in use in the schools at the time. The window ventilated rooms were not originally equipped for this type of ventilation, and so had to be modified, so that the system of window ventilation did not actually represent the best type of window ventilation which could be devised. In general, however, the comparison could be regarded as one which was very fair.

In securing the records, the nurses visited the rooms under their care in the morning and afternoon to determine absences and their causes. The homes of all children absent were visited and the exact cause of absence was ascertained. Systematic records were also secured regarding the physical conditions of the rooms. The cold window rooms were kept seven to eight degrees lower in temperature than the normal rooms. The fan ventilated rooms were operated at a temperature two degrees higher than the normal window rooms for the reason stated above that fan ventilation with its high degree of air movement requires a slight elevation of temperature in order to avoid complaint of drafts on the face. The temperature of these normal window rooms was 66° to 67°, that of the fan rooms, 68° to 69°. In one study more marked overheating did occur at times in the window and fan rooms both, while in the second study, overheating did not occur in either type of room. The humidity was approximately the same for all the rooms. The rooms at a normal temperature gave general satisfaction, regardless of the system of ventilation employed, although the fan rooms were regarded as being more often especially fresh and less frequently odorous.

More Absences in Fan Rooms

There were more absences due to respiratory sickness in the fan ventilated rooms, as compared with the other two types of window ventilated rooms. The differences observed were not only found in two successive studies, one confirming the other on this point, but after submitting the figures to a very thorough and critical statistical analysis, it was apparent that the differences in disease rates were really significant. For every 100 absences due to respiratory sickness in the window rooms, there were 118 similar absences in the fan rooms. The most prevalent causes of absence due to respiratory sickness were tonsillitis, colds, and bronchitis.

Strangely enough, even the window rooms which were kept relatively cool, namely at 59°, or about ten degrees cooler than the fan rooms, showed much less absence due to respiratory disease than the fan rooms.

A second significant finding was that among the children present in the classroom, all of whom were examined twice daily by nurses or physicians, there were more children with respiratory affections in the classrooms ventilated by means of fans. Almost two-thirds of these affections were "colds;" one-fifth were cases of "bronchitis." For every 100 cases of children with such disturbances in the window rooms, there were 170 such cases in the fan ventilated rooms. A striking finding was that among the children present in the cool window rooms, as compared with the normal window rooms, there was no important differences in disease rates.

The most important conclusions from these critical studies, conducted in 216 classrooms of 31 different schools over a period of five school semesters was that window ventilation appeared to be the most promising method for classroom ventilation. While well devised and well controlled systems of fan or artificial ventilation with windows closed were found capable of producing excellent results, it appeared that such rooms ventilated by fans have certain characteristics, inherent in this method of ventilation, which make them definitely inferior to rooms ventilated by a good system of window ventilation, at least when so operated as to produce a high air flow of 30 cubic feet per minute.

Window ventilated rooms have less air change and less air motion, particularly in the zone of occupancy than fan ventilated rooms. This lesser air flushing has, however, been found sufficient to suppress the accumulation of odors. Moreover, this lessened aeration and air flow in window rooms permit the maintenance of a cooler air condition, for which cooler condition a very general preference was found to exist. Furthermore the uniformity of air currents and air temperature characteristic of fan ventilated rooms is probably undesirable. Altogether fan ventilation with a relatively large flow of air at 69° seems to exert a harmful effect on health, promoting susceptibility to disease and affections of the air passages.

Window System Advantages

In order that the system of window ventilation may be satisfactory there must be ample heat supply through radiators placed below the windows. The heat supply in these radiators must be carefully controlled either by hand or by thermostat. Window boards or deflectors should be used to impart an upward direction to the incoming air. Panes of glass, one foot high, set in the window sash, or a deflector made of parallel curved vanes may be used. There must be openings in the inside wall of the classroom, having at least eight square feet in diameter in all, lead-

ing into air ducts through which the heated air of the room can find its way out. This is the "gravity exhaust duct," which must be provided for successful window ventilation. There is no need of a suction fan in this duct which works against the success of the system. The ducts should have aspirating cowls on the roof and should be provided with dampers to control down-drafts. Without these gravity exhaust ducts, window ventilation is successful only in mild weather when inside doors and transoms are usually also freely opened.

The room must not be overcrowded for over population mitigates against the success of window ventilation. In the average sized classroom, there should be no more than thirty-nine second-grade children or thirty sixth-grade children. There should be a thermometer in the room so that overheating can be avoided. A temperature around 67°F. is most agreeable. Window shades should be so attached as to avoid flapping.

Specifications for a successful system of fan ventilation call not only for adequate provision of fan, motor, duct and register equipment, but also require that the temperature and volume of the air supply in each room shall be mechanically and individually controlled. Gravity exhaust ducts should be supplied as in window ventilation. The incoming air should have a moderately low temperature and there should be no radiators in the room to provide heat. The best arrangement of inlet and outlet is one in which the inlet is placed on an end wall eight feet above the floor level with the outlet on the same wall near the floor. The exhaust duct should be ample in size, should have a damper to control back drafts, and should have an aspirating cowl at its opening on the roof. A thermometer in the room on the teacher's desk should be plainly marked at 70°, above which the temperature should not be permitted to go.

The commission points out that the nature and environment of the enclosure to be ventilated dictate the method of ventilation to be used, and that what is adequate for one type of building may be inadequate for another. Theaters and auditoriums, for example, must generally rely an fan systems. Window ventilation would prove inadequate for a school which is overcrowded and in a noisy and insanitary district. It is possible that fan ventilation in the schoolroom may be robbed of its disadvantages by decreasing the amount of air supply with a corresponding lowering of temperature, approximating more closely the conditions obtained in window ventilated rooms. In general, however, it seems clear, from the results of the studies here reported, that window ventilation with gravity exhaust will often furnish the ordinary schoolroom with a system of ventilation which is more economical, more comfortable, and more healthful than the ordinary system of forced ventilation.

Administrator's Part in Hospital Planning

By A. L. BOWEN, Former Superintendent of State Charitable Institutions, Department of Public Welfare, Springfield, Ill.

HOSPITAL buildings twenty-five and thirty years ago "just grew." They remain with us today and are occupied because they are too good physically to dismantle but they are very far out of date. When they were planned neither architect or superintendent understood what was needed.

The hospitals built today are, for the most part, the embodiment of the ideas of the architect. Architecture has developed a specialty—that of hospital planning and building. Hospital administration and management have not yet taken the serious part in the development of hospital planning that they should.

The hospital of the future will be the joint product of architect and administrator. Architecture has done its part. It has developed the specialty, as I have indicated, and is studying all the problems it has to deal with. It has even gone into the field of professional management because there has been such a dearth of administrators with a knowledge of what should be incorporated in new construction. The architect has given to the modern hospital its exterior style; he has economized on space within; he has shortened distances and installed equipment and devices that are labor-saving. The architect has reached the limit of his possibilities in hospital construction, unless we are to expect him to qualify as an expert in administration.

This artistic building has been erected for the Hospital in Mass., by Kendall Taylor & Co., architects.

Hospital improvements of the future will depend, I believe, upon the hospital administrator. As a profession, hospital management is just emerging from the scene. By cooperation with specialized architecture it can give us a better hospital than any we now have.

The absence of professional hospital knowledge is most clearly apparent in the state and federal service where administration as a profession is an almost unknown quantity. The architect, called upon to plan a new state hospital for mental and nervous cases, for instance, is almost at sea. Even those who have specialized in general hospitals strike a new field and have to guide them only what someone before them has done.

For many years superintendents and boards in charge of these particular institutions have changed so often and have been subject to such political domination that little knowledge in the planning of new institutions or in developing the old has accumulated. The newest state hospitals are not

enough of an improvement, from an architectural standpoint, over the old types to warrant any enthusiasm about them and even less improvement may be noted from an administration standpoint. The congregate institution has been discarded and cottages substituted, but the big unit still remains. An institution of three-story cottages, housing 150 insane patients each, is little better than the old style congregate institution.

I once traveled through nine northern states seeking new buildings at state hospitals or other state eleemosynary institutions. I wanted to get the latest ideas. Illinois was preparing to spend a large sum upon enlargements of old institutions and the erection of a new hospital. My trip was almost fruitless. I found very few superintendents who had given the subject much thought. Even the oldest and most experienced were not builders and left all such subjects to the state architect. They frankly told me they had no improvements to suggest and always left planning entirely to the architect. The result was that gloom and misery were still the prevailing architectural motifs of state hospitals. It could not be otherwise; architects followed what they saw, thinking of course, it was right.

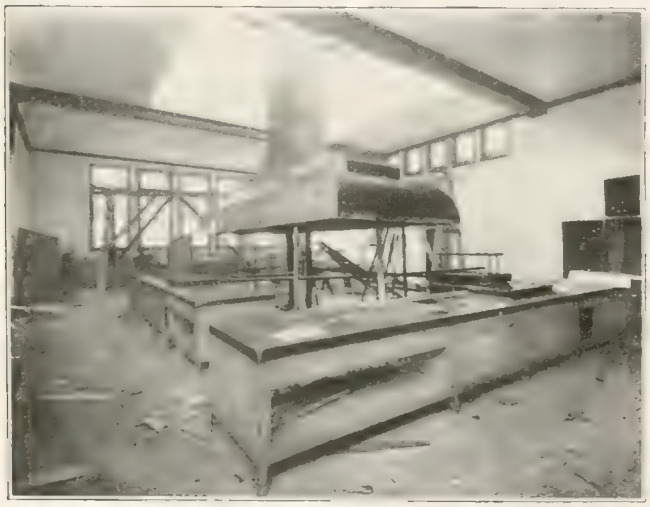
The state architect, as a rule, is a short term political appointee. He wants to do something different from his predecessor. Hence I found on the grounds of these institutions as many architectural strata as there had been political architects since their origin.

Having little or nothing to work on and being determined to do something that none of his predecessors has done, the architect with a commission to plan a building or institution is very likely to be guided by preconceived notions, by what he sees or by a very superficial knowledge gained by a brief experience.

An example will be timely. Such a political architect fell heir to the job of building a new hospital for the insane. Until a few months before he started the task, he had not seen an institution of its character but he soon acquired ideas. Unfortunately his first advisers believed in an institution "all under one roof." Then again he had a lot of notions, hastily conceived out of what he had seen on several trips to state hospitals of the old type.

The congregate hospital is the ideal hospital for the employee. It suits the average superintendent and his staff and everybody else on the payroll. It is easier to manage and handle and requires less thinking. An old superintendent who was trying to operate a cottage institution from his swivel chair was bemoaning the evils of the day which had separated him from the old institution in which he boasted he "could visit any ward in his stocking feet." It was such an adviser who put this architect up to drawing a freak institution, the object of which was to pack as many insane into as small quarters within the shortest distance of headquarters as was architecturally possible and "all under one roof." The gregarious instinct among state hospital administrators subsides slowly.

Final approval of his plans depended upon several men who had modern ideas as to the rights of the inmate himself. After long, heated discussion, they were withdrawn in favor of a strictly cottage institution with plenty of room for recreation and the ordinary activities in which the physical man finds enjoyment, regardless of how seriously he may chance to be afflicted mentally.



The main kitchen of the new Service Building being erected at Alameda County Hospital at San Leandro, Cal., as it looks at the present time. This building is being constructed at a cost of $125,000 and is expected to be one of the most complete of its kind anywhere.

Another architect of very much the same type came to me one day with a wonderful discovery. "I don't like the 'T. B.' cottages that have been erected at the state hospitals, and I have devised one that ought to be an improvement. They tell me that the tuberculous ought to have plenty of sunshine, so I have planned a cottage to be made like a green house, —all glass." He was very much disappointed when he heard my objections and realized he could not build greenhouses to house tuberculosis patients.

These men were not to blame. They were sincerely trying to introduce improvements but they had no stock of knowledge from which to derive new ideas. The superintendents recruited from country practice, for political reasons, many of them never before in a state hospital, were not in a position to give advice or tell what these institutions needed. Thus it has happened that thousands of dollars have been wasted and little progress has been made in state hospital building.

A state hospital is overcrowded. The legislature appropriates $100,000 for a new building. If the superintendent is unable to tell the architect what he wants, how may we expect the architect to know. Often the superintendent has not the faintest notion as to what type of patient the building should be designed to house. It does not occur to him that prevailing styles are enough to drive a man into melancholia. That ward buildings may be homelike and pleasant does not appeal to him. More than once in my experience I have found superintendents who were dumbfounded that I should think their buildings were hideous. Fifty thousand dollars were expended once on one building under such conditions. The architect located it a quarter of a mile from the main and only kitchen and congregate dining room. He provided a dining room in the building, but no kitchen or place where food might be kept warm and no way to get into it with food except through the front door. But he put in a laundry because the building was so far from the institution laundry. While it was designed for men, the plumbing was for women. It was located on the line of a public road traversed by street cars and hundreds of machines daily. The plans did not reveal these incongruities to the superintendent. The architect knowing nothing about the problems of the insane went at it blindly.

Perhaps such things have happened in the planning and erection of general hospitals and for the same reason. It is not my intention to criticise the architect. He has done more than his share. He has tried to de-

Farm Home Care for Insane Patients

By P. S. WATERS, M.D., Assistant Superintendent, Alton State Hospital, Alton, Ill.

DEALING as we do with abnormal physical and mental conditions in the inmates of our state institutions we are apt, if we are not exceedingly careful, to accept and maintain false standards of living for them. Our greatest obligation to the mentally unbalanced who come to us for care and treatment is to guide them back into a normal relationship to society and it is with this particular idea in view that the following facts are presented concerning the establishment at the Alton State Hospital of what we may term *small group* care of the insane.

Illinois, like many other states, maintains at great expense, large institutions many of which in part at least, have been built according to ideas now obsolete. The care of patients in large groups has a tendency on account of a mononotous and desultory mental life to place them in a groove and hasten deterioration. Patients with persecutory delusions and hyperquantivalent ideas are considerably irritated by conglomerate ward associations so that large group care has a tendency to defeat the very end desired. So far as possible we should strive to individualize our patients more, hence this argument for small group housing.

Farm colonies with their small groups enable us to come into closer contact with the individual in almost natural environment, to study his peculiarities and to remove his difficulties. The writer, after three years of observation and experimentation with this form of care, is convinced that it has a distinct therapeutic value, offering a more hopeful outlook to a larger number of patients than any other form of care introduced in recent years. The farm colony idea, of course, is not a new one. There are farm cottages in all the institutions of Illinois and many other states but almost invariably these are large buildings holding from forty to sixty patients and are viewed as industrial wards for patients concerned in the various activities of the farm. The most important qualification for residence in one of these cottages, as they are usually maintained, is the patient's proficiency as a farm laborer.

A better plan, as we view it, came into vogue at the Alton State Hospital rather accidentally when the thousand-acre hospital farm was taken over by the state and we came into possession of a number of buildings upon the various tracts of land formerly occupied by the tenants. Comprised in this acreage were two large brick buildings, one large frame dwelling and three small frame structures. The question of utilizing these buildings most profitably confronted us. They were in various states of dilapidation; one had even been condemned and ordered destroyed by state officials. All building for the insane had ceased in Illinois during the period of the war and out of our consequent perplexities at Alton arose the present idea of the farm home care of patients, thanks in a great degree to the ability of Dr. George Zeller, superintendent at that time, to visualize the possibilities that lay in a few scattered farm houses. These farm homes were soon occupied by patients and the work of their repair in which the resident patients assisted was commenced. From these old farm houses four cheerful, sanitary and very livable homes were constructed, housing now about sixty-four of our male patients.

These farm homes for the patients, accommodating from sixteen to eighteen each, neither from their exterior nor interior appearance, advertise the fact that they shelter the insane. Rather they give the appearance of ordinary countryside homes; and within they are filled with the atmosphere of home life. It is this "home and fireside" air that emphasizes the difference of this idea from that of large group care. Every patient added, above this small number of a dozen and one-half, the writer feels will subtract a corresponding amount from the value of the home to the individual.

Of course it may be argued that the farm home is impracticable because it is too expensive to administer with a small number of patients. The cost of the upkeep, in the minds of many, is still a paramount issue, either as a cold business proposition or because of forced economy, the latter condition being the more common. It is only necessary to visit these homes once to see that, so far as the patients' benefit is concerned, they are at least 100 per cent more efficient than the large group wards, and we are able to manage them at no greater per capita expense than the average ward. We place in charge of these homes a man and wife. The latter is charged with the care of the home while the former is a farm laborer in charge of details. Married couples are much happier employed and remain in the home continuously so only one employee per day is charged to each home. The housewife's work is pleasant and homelike. We always have many waiting for these positions. She trains her cook and household assistants, usually three or four inmates are required for these duties, and gives much time to overseeing the raising of poultry, which is being done on a considerable scale in connection with some of the colonies.

And here, moved by the contrast, the writer would urge the construction of more homelike buildings, as free as possible from the marble and tile and the cold aseptic air so often seen in the construction of our ward buildings. We are not caring for patients accustomed to wealth and luxurious appointments at home.

In times past we have failed in a great measure to consider the value of environment as a remedial agent. There has been too much of the artificial and not enough of the natural. We have been taught to call our inmate a patient and in consequence everywhere about him he sees evidences of the hospital idea; the gowned nurse and white-coated attendant constantly remind him of the fact that he is handicapped. Why not substitute, in place of large impersonal structures for the care of from 30 per cent to 40 per cent of our institutional population, the "home and fireside" idea. Under ordinary conditions these cottages can be built of frame and stucco to hold eighteen or twenty patients for about $8,000 each. They should house patients engaged in every form of industrial occupation, as well as convalescents and cases where a small group care seems especially intimated.

The patients of our Colony One take care of our horses and some poultry. Colony Two is beautifully situated among large maple trees and overlooking a small lake; no other buildings of the institution are in view except two other colonies. Here we have specialized in the raising of water fowl and from a few pair they have increased to a point where several hundred can be seen any day swimming upon the lake, an invigorating and healthful sight for our patients when they sit upon the porch

after their day's work. Colony Three is a large farm dwelling, the occupants of which are employed in the dairy a short distance away.

Colony Four, most interesting of all, is not essentially an industrial colony, but has been gradually developed as a convalescent and reeducational ward for a few selected chronic cases. It is an assemblage of three small frame dwellings, once located at different points upon the farm and now made into a very cozy little home. Here a number of recoveries have taken place and many patients have gradually improved. Some time ago a baby was born to the mother in charge of this colony and allowed to remain there with its father and mother. This was a fortunate thing for a number of the patients in whom a return of normal interest apparently began with the entrance of the little stranger into this oddly assorted group. One not having seen it can scarcely appreciate what the presence of this child means to the life of this little colony. Relatives of the patients located here rejoice in their good fortune and insist upon their remaining.

One of the members of this group, an artist, who had been in another institution for twenty-five years and most of the time in closed wards, has recovered. A small studio was arranged for him when he produced some quite creditable paintings. The little child, he often remarked, had brought a new interest into his life. He has now been away for the past four months upon parole and is earning a living by his painting. Others of the colony assist with poultry and garden and two work in the carpenter shop. Many others who have been upon the receiving wards for months with little or no improvement have shown a marked gain and even recovery in the quiet, cheerful atmosphere of their rustic home. We regret that space will not permit giving a more detailed report of these cases. The observation of their improvement has been the most gratifying bit of experience the writer has enjoyed during his connection with state institutional work.

Advantages of Farm Colony

To watch the progressive, day-by-day awakening of the stupid dementia praecox, who for years has been deteriorating, emphasizes more than words can tell the importance of environment as a therapeutic agent in the treatment of the insane. Occupational therapy, our latest and possibly most powerful reeducational agent, loses much of its potency because the patient cannot be removed from the mire of his congregate ward environment and into the stimulating atmosphere of rural home life. Let us hope that the day is not far distant when the state will grasp this opportunity and instead of constructing more large buildings will build a farm home type of structure for housing the occupational, industrial, vocational patients and as many of the convalescent, acute cases as can be treated in this manner.

The small group farm colony care of mental cases, then, has the following advantages:

1. It affords a quiet farm home environment.
2. It does away with the irritating effect of conglomerate ward associations.
3. It removes the hospital or mental invalidism atmosphere.
4. It represents economical construction and maintenance.
5. It permits the study of individual traits together with the gradual increase of individual responsibility.

The Red Discoloration of Cured Codfish

The occurrence of red discoloration on food stuffs is of extreme antiquity. Outbreaks of bloody food have often been attributed to *B. prodigiosus.* Harrison and Kennedy (*Tr. Roy. Soc.* Canada, 3 S., 1922, vol. xvi) report the isolation of a new microörganism responsible for the red discoloration of codfish and serious economic loss to the fishing industry. It is impossible to classify this organism in any existing genus recognized in the standard classification. If a new genus is warranted it might be called Erythrobacter, but for the present the discoveries propose the name *Pseudomonas salinaria.* The immediate source of the contamination is the solar salt used for curing the fish and the utimate habitat appears, from examinations of the brine from salt works, to be in the semitropical waters from which the salt is obtained by evaporation. The organism exhibits extreme pleomorphism and shows optimum growth in a salt concentration of 16 per cent; it is difficult to stain, does not grow on ordinary laboratory media, and is nonpathogenic. The discoloration produced on the surface of the dried fish destroys its market value and since solar salt seems preferable to mine salt for the curing of fish, the writers propose kiln drying of the salt at 100 degrees Centigrade, a temperature above the dry heat thermal death point found in the laboratory investigations. The salt producers claim that storage is sufficient but studies on the oldest samples obtainable did not substantiate this contention.

Standard Methods for the Analysis of Milk

In the report of the referees—Robert S. Breed and R. E. Doolittle—for the bacteriological and chemical analysis of milk, presented at the recent meeting of the A. P. H. A., it was recommended that the methylene blue reduction test be included in the fourth edition of the Standard Methods for Milk Examination as a provisional method; that the ratio between the official plate count and the count of individual bacteria by direct microscopic examination be placed at 1:4 instead of 1:5 as in the present report.

It was also recommended that the chemical methods of the Association of Official Agricultural Chemists be adopted as the standard methods of the American Public Health Association and incorporated in the fourth edition of the Standard Methods for the Examination of Milk.

These recommendations were adopted and referred to the Committee on Standard Methods with power to act in editing and publishing the new report.

Indiscriminate Tonsillectomy Condemned

Believing that the tonsils, like all other lymph nodes, exercise a protective function, Hieman (*Am. J. Dis. Child.*, Sept., 1922) condemns the indiscriminate removal of tonsils. He states that tonsillitis is usually only a manifestation of systemic infection. If the infection becomes more generalized, it manifests itself in spite of the tonsil, not because of it. In rare instances, however, the tonsils may cease to function and become clogged filters, in which case they may prove a source of infection, but this condition should be proved before they are sacrificed.

In order to alleviate the part-time physical training program necessitated in New York high schools by over-crowding, George J. Ryan, president of the city board of education, is attempting to gain permission to use the public parks and armories for this purpose.

Jewish Free Hospital for Consumptives

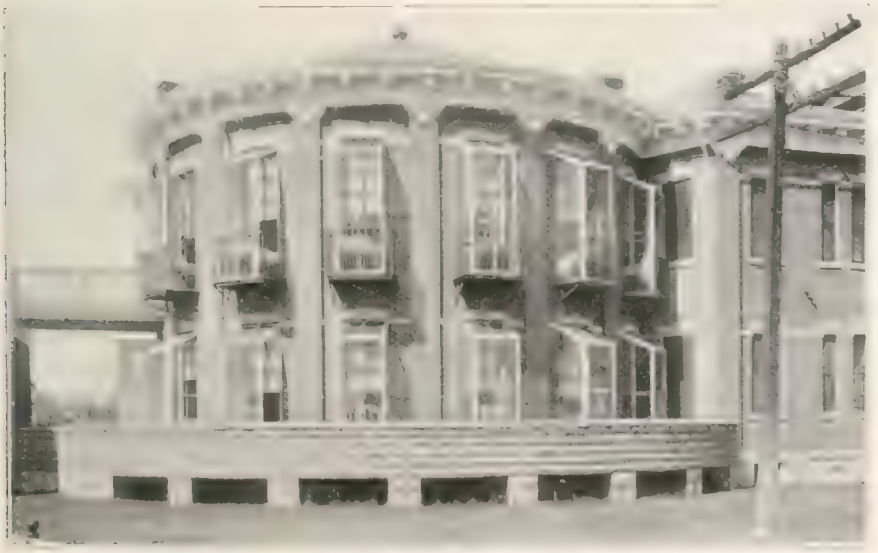
THERE has been a tendency in recent years to emphasize the proper care of the tuberculous at home—to impress upon people that nourishing food, proper rest, and fresh air, main instruments in the fight against tuberculosis, can be secured in any climate and that there is no need for the patient to spend all his funds in the search for climate. The "get cured at home" idea has been disseminated to stop the migration of persons with insufficient funds to climates where, friendless, they often suffer from lack of care. Important as food, rest, and fresh air are in the treatment of tuberculosis, however, experts have long recognized the value of a high dry climate in alleviating the symptoms and effecting a cure.

Mountain air, because of its dryness, its altitude, its freedom from dust and its great amount of sunshine, has been accorded the ideal climate for the tuberculous. Its physiological effect is exhilarating to the healthy person as well as to the sick. The barometric pressure is low in proportion to the height above sea level and the partial pressure of oxygen is correspondingly diminished. The physiological result is deeper breathing. The tenuity of the atmosphere combined with brighter light leads also to an enrichment of the blood so that a greater amount of hemoglobin is in circulation and a larger number of red corpuscles carry it. At a height of five thousand feet, the increase may amount to from 20 to 30 per cent. Experiments have shown that the total amount of blood and even the number of lymphocytes is increased. Mountain air increases metabolism; it stimulates the appetite.

It is, therefore, with scientific evidence of the positive benefits of high altitude that founders of tuberculosis sanatoriums have sought the mountains for building sites, and Denver situated one mile above sea level fulfills the climatic conditions most favorable to the arresting of tuberculosis. Among the hospitals for the tuberculous in this city is the National Jewish Hospital for Consumptives, the first free hospital for the tuberculous in the United States. "None can pay who enter" and "none may enter who can pay" set forth the policy of the institution whose doors are open to all the indigent sick.

From one small building the plant has grown to twelve including an administration building, woman's building, two buildings for men, industrial school building, dining room and kitchen building, laundry and boiler house, superintendent's house, children's pavilion, and home for nurses.

During its existence the hospital has treated 4,200 patients, has restored 2,421 to economic independence, has improved the condition of 3,077, and has made comfortable 1,123 incurables. The past year it admitted 215 patients, 134 men, 46 women, and 35 children. Of this number 199 were discharged, 85 of whom were restored to health and full earning power; the condition of 63 was improved; the remaining number were advanced cases when they came to the hospital.



Woman's building of the National Jewish Hospital showing how an old building was made to fit the demands of open air tuberculosis treatment

The Grabfelder Medical and Administration building houses the offices, reception rooms, nose and throat rooms, dental department, examination rooms, and the research department. In the Joseph E. Shoenberg Memorial Industrial School building are conducted various classes for men, women, and children, among which are classes in Americanization and citizenship.

Notable research has been carried on in the laboratories of the hospital under the direction of Dr. Corper who has attempted to discover a cure for the disease by chemical means. He has observed that 3 per cent of carbon dioxid causes some inhibition of the growth of the tubercle bacillus in the test tube, and that 15 per cent is tuberculocidal. The American Medical Association *Journal* in explaining Corper's theory says:

Tubercle bacilli will not grow in a carbon dioxid free atmosphere. Cultures of tubercle bacilli buried in the tissues of animals and permitted to acquire the carbon dioxid concentration of the body are definitely inhibited in their growth, while other cultures similarly buried, except that ingress of atmospheric air is permitted, show no inhibition. When viable tubercle bacilli are placed in a closed system, their growth becomes inhibited as the carbon dioxid which the organisms elaborate approaches a concentration of approximately 5.5 per cent., at which concentration respiration of these micro-organisms is also reduced to a minimum. In a closed system the end-products of metabolism automatically inhibit the growth of the organisms that give rise to them.

As a concentration of carbon dioxid, namely, 5.5 per cent, sufficient to inhibit the growth of the tubercle bacillus definitely may occur under normal conditions in the body, it is perhaps not too visionary to assume that this product of metabolism may be of no little importance in relation to tuberculosis. It has been said that this finding reopens the consideration of the influence of fatigue, exhaustion, exposure, metabolic diseases, etc., as probable etiologic factors in the causation of tuberculosis in view of their abliity to alter the carbon dioxid content of the body. Experience warns us against undue enthusiasm or false steps in a field in which so many hopes of scientific progress have been shattered in the past generation. Nevertheless, all new findings, as those obtained by Corper, deserve a respectful consideration.

The physical plant of the hospital has kept step with the development of research. All the buildings have been modernized with outdoor sleeping afforded to all patients. The aim of

Interior view of sleeping room in the Woman's building.

the institution is to give to the patient within its walls all the comforts and the care that the wealthy person receives.

Delaware's New Schools

REALIZING that the cause of public education was failing of state support, the Service Citizens of Delaware through their school auxiliary association decided to use the Pierre S. du Pont educational fund of $3,500,000 for the building of rural schools to replace old and ramshackle ones that had been in use for years. One million of the fund set aside for the building of schools for the negroes was available at once. The $2,500,000 appropriation for the building of white schools, however, was not available immediately and action therefore has been somewhat delayed.

The aim of the organization has been to supplement and assist and never to duplicate or usurp the functions of the state officials, states Joseph H. Odell, director. During the past year the Service Citizens have built 18 schools for white children, and have built a kitchen and addition to dining room and two dormitories for the Woman's college, making a total of 93 rooms, with pupil capacity of 2,644 at a cost of $644,202.40. Thirty-six schools for negro children numbering 47 rooms and accommodating 1,950 children were built at a total cost of $295,500.

Fifteen schools for colored children remain for future construction and building will begin as sites are secured. The buildings are modern and complete in every detail and are constructed for a maximum of use as well as beauty.

But with the building of these schools it became a question as to how many children were taking advantage of the increased facilities. Investigation showed a low school attendance. The Citizens Service therefore appointed a committee to study school attendance and the reasons for absence, and an endeavor was made to bring the children back to school.

To provide medical inspection and dental hygiene in the public schools the following organizations have united with the state board of education—child welfare commission, Delaware chapter of the Red Cross, Delaware Medical Society, Delaware Dental Society, the Service Citizens, and the Delaware School Auxiliary Association. The work was financed by these organizations and was used as a demonstration to the state to show them the need for such service. Dr. William J. French, director of the Child Welfare Commission, was adopted by the state department of public instruction as its director of medical inspection and had charge of the work. Under Dr. French's direction 11,867 school children were examined with the finding that 894 were free from defects, and that 3,419 were 10 per cent or more underweight.

Dental work has been supervised by members of the committee representing the State Dental Society, the actual work being done by two hygienists whose duties consist mainly of examination, cleaning of teeth, prophylactic treatments, and talks and demonstrations. Those who need other dental work and can afford to pay are referred to private dentists while others are taken care of by the committee. Up to Aprli 8 of this year the Dental Unit had examined 1,314 children, with a finding of 1,228 defects. Corrective work was performed for 176 of these, and 86 were found to have perfect mouths. Only 10 children have refused examination.

Dr. Frankwood E. Williams has been appointed medical director National Committee for Mental Hygiene to succeed Dr. Thomas W. Salmon.

The old negro school at Bridgeville is typical of the ramshackle buildings replaced by modern structures by the School Auxiliary Association of the Service Citizens of Delaware.

Cantilever Dealers

Cut this out for reference

Akron—11 Orpheum Arcade.
Albany—Hewett's Silk Shop, 15 N. Pearl
Altoona—Bendheim's, 1302—11th Ave.
Austin—Carl H. Mueller.
Baltimore—325 No. Charles St.
Bangor—John Conners Shoe Co.
Battle Creek—Bahlman's Bootery.
Bay City—D. Bendall Co.
Birmingham—219 North 19th St.
Boston—Jordan Marsh Co.
Bridgeport—W. K. Mollan.
Brooklyn—414 Fulton St.
Buffalo 639 Main St
Butte—Hubert Shoe Co.
Camden—Curran's, 110 Broadway.
Charleston, S. C.—J. P. Condon & Sons.
Charlotte—221 Piedmont Bldg.
Chicago {30 E. Randolph St. (Rm 502)
{1059 Leland (Near Broadw'y)
Cincinnati—The McAlpin Co.
Cleveland—Graner Powers, 1274 Euclid
Columbus, O.—104 E. Broad St. (At 3rd)
Dallas—Leon Kahn Shoe Co.
Decatur—Raupp & Son
Denton—W. B. McClurkan & Co.
Denver 224 Foster Bldg.
Des Moines—W. L. White Shoe Co
Detroit 41 E. Adams Ave.
Elmira—C. W. O'Shea
Erie—Weschler Co., 910 State St.
Evanston—North Shore Bootery.
Fairmont—J. M. Hartley & Son Co.
Fitchburg—W. C. Goodwin 342 Main St
Galveston—Clark W. Thompson Co.
Harrisburg—26 No. 3rd St.
Hartford 86 Pratt St.
Holyoke—Thos. S. Childs, 275 High St
Houston—306 Queen Theatre Bldg
Indianapolis—L. S. Ayres & Co.
Ithaca—Rothschild Bros.
Jacksonville—Golden's Bootery.
Jamestown—J. L. & A. L. Johnson
Jersey City—Bennett's, 411 Central Ave.
Kansas City, Kan.—Nelson Shoe Co
Kansas City, Mo.—300 Altman Bldg
Lancaster, Pa.—Frey's, 3 E. King St
Lincoln—Mayer Bros. Co.
Little Rock—Pfeifer Shoe Co., 302 Main St
Los Angeles—505 New Pantages Bldg
Louisville—Boston Shoe Co.
Lowell—The Bon Marche.
Macon—The Dannenberg Co.
Madison—Family Shoe Store.
Mansfield—Brownell Shoe Co.
Memphis—Odd Fellows' Bldg. (2d floor)
Meridian—Winner, Klein & Co.
Milwaukee—Brouwer Shoe Co.
Minneapolis—25 Eighth St. South.
Missoula—Missoula Merc. Co.
Mobile—Level Best Shoe Store
Montgomery—Campbell Shoe Co.
Nashville—J. A. Meadors & Sons.
Newark 897 Broad St. (2nd floor)
New Britain—Sloan Bros.
New Castle, Pa.—229 E. Washington St
New Haven—153 Court St. (2d floor)
New Orleans—109 Baronne St. (R. 200)
Newport, R. I.—Sullivan's 226 Thames
New York 14 W. 40th St. (opp. Lib.)
Norfolk—Ames & Brownley
Oakland—205 Henshaw Bldg.
Omaha—1708 Howard St.
Ottumwa—Truefit Company
Passaic—Kroll's, 37 Lexington Ave.
Paterson—10 Park Ave. (at Erie Depot)
Pawtucket—Evans & Young
Peoria—Lehmann Bldg. (Room 203)
Philadelphia—1300 Walnut St.
Pittsburgh—The Rosenbaum Co.
Pittsfield—Fahey's, 234 North St
Plainfield—M. C. Van Arsdale.
Portland, Me.—Palmer Shoe Co.
Portland, Ore.—353 Alder St.
Poughkeepsie—Louis Schoenberger
Providence—The Boston Store
Reading—Sig. S. Schweriner
Richmond, Va.—Seymour Sycle
Rochester—148 East Ave.
Rockford—D. J. Stewart & Co.
Saginaw—Goeschel-Brater Co.
St. Louis—516 Arcade Bldg., opp. P.O.
St. Paul—43 E. 5th St. (Frederic Hotel)
San Francisco—Phelan Bldg. (Arcade)
San Jose—Heft & Kayser
Santa Barbara—Smith's Bootery
Savannah—Globe Shoe Co.
Schenectady—Patton & Hall
Seattle—Baxter & Baxter
Shreveport—Phelps Shoe Co.
Sioux City—The Pelletier Co.
Spokane—The Crescent.
Stamford—La Sicilia & Son
Syracuse—121 West Jefferson St.
Tacoma—255 S. 11th (Fidelity Bldg.)
Trenton—H. M. Voorhees & Bro.
Troy—35 Third St. (2d floor)
Tulsa—Lyon's Shoe Store.
Utica—135 Genesee St. (Room 104)
Walla Walla—Gardner & Co.
Washington—1319 F Street.
Wilkes-Barre—M. F. Murray
Williamsburg—Anderson's, 918 Wood St.
Wilmington, N. C.—Wilmington Shoe Co.
Worcester—J. C. Machones Co.
Yakima—Kohl's Shoe Co.
Yonkers—22 Main St.
York—The Bon Ton
Youngstown—E. McManus Co.

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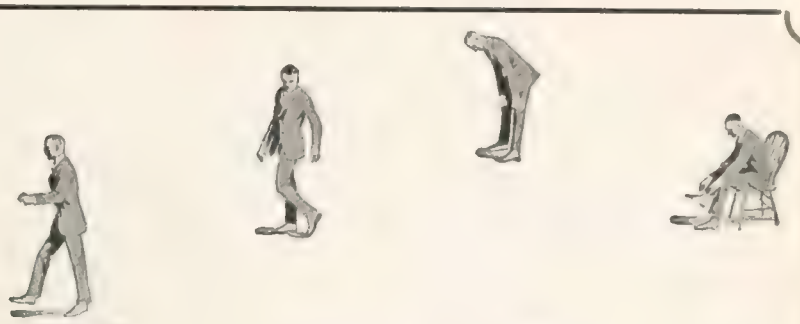

Man—your first pair

of Cantilever Shoes will bring back the old time spring to your step and give your feet a new lease on life

Comfortable feet never interrupt a busy mind. Active men who need their heads to think with and their feet to walk on, are quick to appreciate the comfort of Cantilever Shoes.

Cantilever Shoes are made with consideration for the necessary functions of your feet, as well as for their natural shape. They have flexible arches, like the arches of your feet, that permit the foot muscles to exercise and grow stronger.

Some men do not realize that the feet should be free to exercise just like the arms and legs. Feet that are held rigid in ordinary shoes are losing their muscular strength. Week foot muscles cause weak feet. The weakened muscles are not able to hold the 26 small bones of each foot in their proper arched positions. The Cantilever Shoe has a snug-fitting shank which supports the arch naturally and without appliances. It gives your foot muscles freedom to exercise.

Cantilever Shoes have a natural sole line that gives the toes plenty of room. The heels are slightly higher on the inside to help the feet assume a straightforward position. This distributes the body weight more evenly over the foot and takes the strain off the inner arch. In Cantilevers you will walk with ease and snap. Your circulation will be better, your health will be benefited and you will feel your feet speed up.

You will like the looks of Cantilevers. They are made of fine leathers on good lines, and are reasonably priced.

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Cantilever Shoe

for Men and Women

velop a specialty but he can go only so far.

The point I desire to make is this; the plans for a hospital, public, general, state or federal, should be roughly drawn by an expert hospital administrator who is competent by study and experience to tell the architect exactly what he wants, what he desires to accomplish and how he expects to accomplish it. The architect's business is then plainly marked out. He should draw the plans as directed. He must fit the building to the site and design it within the funds available. He should know how to do what the administrator wants done and should be free to advise and suggest, even though he contributes nothing thereby. The direction should emanate from the administrator to the architect and not from the architect to the administrator. And in case of dispute, the administrator, if he knows his business, should be trusted to make the decision.

Needs Vision of Future

An industrial or commercial corporation desiring to expand its plant knows exactly what is needed,—a building of certain dimensions and height to take care of a certain production. The architect gets his instructions from the corporation and carries them out. It should be thus in the hospital world. No conflict between architect and builder is involved or implied. The architect retains his important and essential position. With the aid he should get from the expert administrator he would make a few mistakes. I believe the crux of the whole subject of better hospitals is the professionalized administrator who understands hospital problems, who has a practical appreciation of what such institutions have been created to do and who has vision and imagination to see the possibilities and demands far ahead.

The County Jail a Passing Institution

Chicago Survey Reports Against the Traditional Type of Jail

By FRANK D. LOOMIS, Secretary, Chicago Community Trust, Chicago, Ill.

FOR many years there has been agitation for a new jail in Cook County. There has been agitation for new jails for many years in many counties. The difficulty is that when the new jail is built it soon proves to be about as bad as the old one—so the agitation for a new jail begins all over again. Jails as a rule are not condemned because they are worn out. They are condemned because they are overcrowded and filthy. The public is made to believe that these conditions will be corrected if the County is allowed to build a larger jail. Hence the agitation.

That has been the experience in Cook County. Our present "new jail," built of solid steel and stone construction in 1895, was scarcely completed before it was condemned. By 1910, both the "old" and "new jails," operated as one unit, had become as crowded as the old one had been before the new one was built "to relieve the over crowding," and the International Prison Congress, meeting here in that year, condemned the whole structure as one of the worst jails to be found anywhere.

Since 1914, four different proposals for bond issues for a new jail have been submitted to the voters. Each proposal has been defeated. There was a widespread feeling, developed under the leadership of some of our large civic organizations, that a new deal was needed—that it would be a useless waste of money and of human material to go on indefinitely under the old policy of building ever larger jails to be promptly filled up as soon as the new space was available. After the failure of the fourth bond issue proposal in the Spring of 1921, the Board of County Commissioners decided to ask the Chicago Community Trust to make a survey of the whole situation and present recommendations which might lead to permanent improvements.

The Community Trust is a charitable foundation which receives gifts in trust and uses the income for philanthropic purposes. It maintains a bureau of surveys and exhibits and has conducted a number of social studies. We were fortunate in being able to secure as the director of this survey, Mr. George W. Kirchwey, LL.D., for many years Dean of the Columbia University Law School; warden, for a time, of Sing Sing Prison, New York, and an internationally known criminologist. He had as his immediate assistants Mr. Winthrop D. Lane of New York, and Mrs. Kenneth F. Rich of Chicago. Work was begun early in February, 1922, and was completed in July.

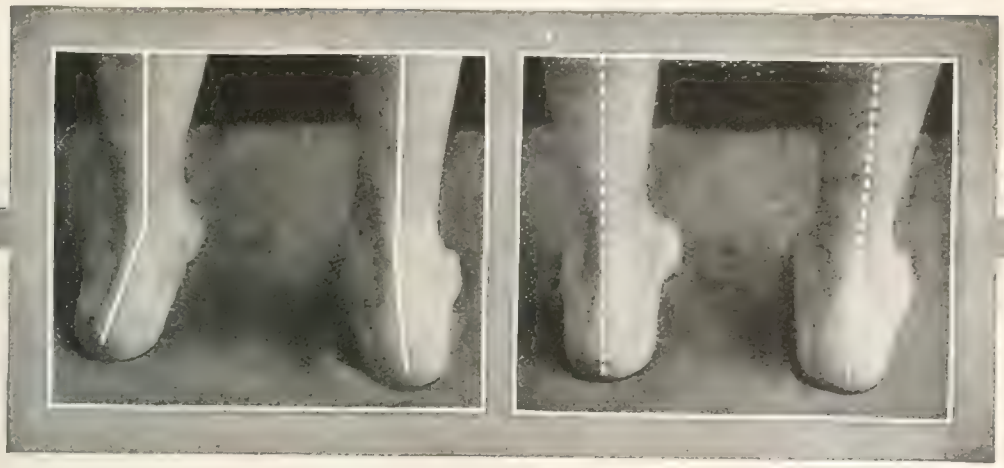
Jail Population Suffers

It will not be necessary to review here at any length the conditions which were found in the Cook County jail.[1] They are much the same as conditions in other jails in the United States, except that our jail is somewhat larger than the average and is possibly more over-crowded. "Taking the country over," says Dr. Kirchwey in the introduction to the report, "the County Jail is the least human of all our American institutions."

The "old jail" in Cook County, erected in 1874, had individual cells for 136 persons; the "new jail" added 180 cells; making the total normal capacity of the combined institution 316. But the jail population in 1921, reached the maximum of 1,013 inmates in a single day. There were ten days when the population was 1,000 and upwards; and only six days in the year when it fell below 700. For a large part of the year many of the cells had to be occupied by five men. Three and four in a cell is common. The cells are about ten feet long, five feet wide and seven and a half feet high. The bunks take up half this space. The cells are dimly lighted and poorly ventilated. The men, and the boys, must spend twenty hours of each day there. Four hours they have for "exercise" in the "bull-pens"—artifically lighted enclosures surrounded by the tiers of cells.

The kind of people who fill the jail and the length of time they stay there are probably about the same as in most jails. It was found that 21 per cent of the 10,642 people who were confined in the Cook County jail last year were boys twenty years of age and under. The largest group, 41 per cent, were young men between the ages of 21 and 30. An individual history study of 101 cases, selected at random, showed that 86 per cent

1. Copies of the complete "Survey" will be mailed to interested individuals upon receipt of request and ten cents postage by The Chicago Community Trust, 10 S. La Salle St., Chicago.



Weak Arch and Flatfoot —

that need mechanical correction are very prevalent and frequently are associated with painful heel, callouses on sole, fatigue, nervousness, neurasthenia, physical exhaustion and rheumatic tendencies. Heavy people and those who are constantly on their feet and whose occupation requires them to assume a posture conducive to the weakening of the leg and foot muscles are usually victims of these complaints. The corrective treatment is simple. Remove predisposing causes such as short hosiery, improperly fitted or constructed shoes and have patient fitted to

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Corrective Foot Appliances

which are scientifically constructed to relieve muscular and ligamentous strain, remove abnormal pressure and restore foot to usefulness. There are distinct types of appliances for each condition. All quickly and easily adjusted to any degree of elevation or curvature, assuring the physician dependable results.

Leading shoe dealers and surgical supply houses in every locality carry Dr. Scholl's Appliances and have also been instructed in Anatomy of the Foot and the proper method of adjusting the appliances to fit both foot and shoe.

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had been resident in the county for at least a year; 70 per cent had local school records; the work record, from local places of employment, was found to be available in 92 per cent of the cases; 94 per cent were attached to families living in Chicago, or were known to neighbors. Study of these records revealed that early education in nearly all cases had been meager; 20 per cent are described as "well-disposed but incompetent;" but the proportion of workers to "loafers" was not less than 81 to 19.

Fifty-nine per cent of all the inmates of the jail in 1921 claimed never to have been arrested before; and 25 per cent were second offenders. Study of jail records for a number of years indicated that at least a third of all those committeed to the jail will eventually be released. A small proportion of these will be released on refusal of the Grand Jury to indict; a very considerable proportion, often more than one-half of the entire number released, will be discharged without trial; and of all those finally brought to trial, probably more than 10 per cent will be acquitted.

As illustrating the length of time persons are held in the jail, it is reported concerning cases held on December 1, 1920, that of 85 dismissed without being brought to trial, only ten were confined less than a month; only 24 less than two months; forty, or 47 per cent, were in jail over 100 days; and 23, or 27 per cent, from 150 to 300 days. Of 56 brought to trial and acquitted, only two were confined less than a month and only fourteen less than two months. Of 404 brought to trial and convicted, only ten were held less than a month and only 80 less than two months. Fifty per cent were confined over 100 days; 30 per cent over 150 days; 20 per cent over 200 days; and 13 per cent over 300 days. Fifteen individuals were held more than 400 days. Thus it appears that, whether innocent or guilty, the average individual committed to the jail and unable to secure bail will spend three or four months there.

In the Cook County jail as in most jails in this country, there is little provision for classification or segregation of inmates. First-offenders are confined with hardened criminals; boys are placed in cells with men; the degenerate and the unsophisticated live together; the sick and the healthy, the clean and the filthy, the dope-fiend and the discouraged young man are all herded together indiscriminately. The most dangerous criminal in the lot is the hero of the "bull-pen." Thus our jails become schools of vice. Boys and girls, men and women are better when they go in than when they come out.

This charge has been made so often and by so many people that it ceases to be effective. Is it not a startling thing that large institutions, maintained by local governments at great expense to the tax-payers, having as their professed object the reduction of crime, have become instruments of crime—agencies through which the volume of crime and degeneracy are actually increased—institutions so productive of vice that it is said that there is no other single institution in the average American community, public or private, which does so much harm?

It has been often said that the only remedy for the county jail is no jail. This does not mean that there shall be no way of holding persons accused of crime until they can be tried. It means that we need a new system, and that is the recommendation of the Cook County survey. The Survey recommends that the name "Jail" be abolished and that there be established in its place an institution to be known as the "Central House of Detention?" The very change in name implies a wholly different character of institution, and it is doubtful if the character of the institution can be changed without a change of name. The terms "jail" and "jail-bird" are inseparably associated in the public mind—the one implies the other.

A House of Detention should be used for purposes of detention only. Persons convicted of crime should be promptly sent to the proper penal institutions. A House of Detention should be a *house*, with rooms, not cells; with windows and light and air; with ground outside, and possibilities for useful work and wholesome recreation; there should be opportunity for education and moral improvement of the inmates. "It is here that opportunity presents itself for the last time perhaps, to turn back this tide of human derelicts in the ways of decent and honorable living."

If the size of the population in the house of detention increases, a new house in the same enclosure can easily be built. Each house should be of simple and relatively inexpensive type of construction. Provision for numbers of inmates in different houses can be expanded or contracted without great difficulty. A relatively few cells only may be provided for individuals who prove untractable or dangerous.

The traditional type of jail permits none of these things. Its monumental character is fixed in steel and stone which cannot be changed. It is extravagant—it must be built large enough to provide for all possible expansions throughout the life of a building of such a character—such a building, costing in our larger cities many millions of dollars, ought to last a hundred years or more. When its single cells are full, two or more prisoners must be confined in one cell; if any cells are empty, the law's delays are made convenient—the cells will soon be occupied.

Another element bearing upon the type of institution to be built and urged by the Survey as a reason for the temporary type, is the fact that the conceptions and methods of treatment of prisoners are undergoing rapid changes. These changes are certain to affect both the size and character of the institutions to be needed. May we not hope for greater efficiency on the part of the police, which will reduce the present large numbers of persons needlessly arrested? Will there not be improvements in the bail-bond system and extensions of the principle of probation so that many poor but reliable persons now held in the jail may be released on bond or on their own recognizance? Will there not be reforms in the administration of criminal justice so that the period of time awaiting trial will be greatly reduced? Is there not likely to be a growing sentiment in favor of allowing those who must be held in public institutions awaiting trial to do useful work which will support themselves and even help to support their families? A large, monumental type of structure would not permit these changes and one of two things would happen—the reform would be thwarted or the building would be relegated largely to disuse. In view of these considerations, the Survey unqualifiedly recommends the temporary type of institution.

The Survey makes two other major recommendations which are in harmony with the central recommendation. It recommends that there be a separate detention house for women, entirely distinct from the main institution, in which all women now held at the various police stations as well as at the jail, shall be held while awaiting disposal of their cases in Police or Criminal Courts. It recommends that there be a separate detention house for boys between the ages of 17 and 20, inclusive.

KOTEX

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KOTEX, the new sanitary pads, are made from Cellucotton, that wonderful war-discovered absorbent dressing. Since peace released Cellucotton to universal service, the best hospitals are using it wherever a cool, efficient, absorbent surgical covering is required.

Kotex are made of thirty-six layers of Cellucotton absorbent, 3½ inches wide by 9 inches long, enclosed in fine gauze 22 inches long, which allows generous tabs for pinning. They are good enough to form a new sanitary habit and cheap enough to throw away.

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Regular Size, 12 for 60c
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Sample of either size free on request.

INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

The Chance of the Child Who Does Not Hear*

THE general effectiveness of any individual depends upon the body of his experience. The different channels through which the average individual is able to register his experience are sufficiently varied to afford him a fairly adequate account of his physical world. Sight, hearing, the sense of smell and taste, tactile and muscle sense, including pressure, heat and cold, and the complex sense of equilibrium, tend to make the world of the individual seem stable and his sense of things complete. Adaptability, and contentment as a harmonious response of the whole organism to its environment, may under such conditions develop normally, uninterruptedly, and without undue strain on psychic functions.

A severe strain, however, is placed upon mentality and disposition with the loss of a single function—a readjustment of the whole mental organism is necessary. With the loss of vision, for instance, the personality must learn to deal with a colorless, formless mental content and mental imagery must find what substitute symbols it is able to create for itself in order to achieve expression.

Reorganization is still more complete in the case of the deaf. Hubbard[1] gives an interesting account of the reassignments of functions with the loss of hearing. New service is exacted from all the faculties, accomplishments are forced and latent talents developed. The degree of sense-reinforcement possible in visual loss, however, greatly exceeds the compensations possible in the case of deafness, for hearing is very intimately related to the emotional centers. The refinements of meaning carried by inflections of the voice are all lost. Literal meanings of word forms replace the flexible modifications which convey variations in meaning that cannot be construed by the deaf. "They miss the vitamins of the daily mental pabulum" says Hubbard.

The loss of music does not affect all to the same degree, for about half of us are tone deaf naturally—meaning that about half of us are not susceptible to the thrills of refined music. But emotions are a natural outlet for suppressed feelings, and deafness seals this flood gate. This is not to say that the deaf cannot find expression. It only serves to indicate the extra strain this handicap puts upon the development of personality. The deaf are required thereby to make an intense study of facial expression to find a suggestion of the sentiment conveyed to the rest of us by modulation as well as by the meaning of the sentence. "They study not the lips alone but the whole face, mouth, eyes, eye-brows, even wrinkles and dimples, head poise and gestures, keenly searching for sentiment, and they do succeed in a marvelous way. They become expert judges of character from that sort of practice." This sort of training develops in the deaf character and a penetrating mind, but a satisfactory and cheerful adjustment is delayed by this handicap and, under unfavorable conditions, may become impossible. Cheerfulness on the part of the deaf is the visable evidence of winning the game in spite of handicap.

Knight Dunlap[2] discusses interestingly the psychic differences entailed by variations in auditory acuity. People are usually classified either as deaf, or hard of hearing without especial regard to the peculiarities involved in defective hearing. Persons suffering from reduced sensitivity to high pitches, may be "normal" up to one thousand vibrations per second, and may be even hypersensitive to tones in the lower part of the usual range; yet they have difficulty in understanding words, and especially whispering, because the discriminating between consonants depends upon the hearing of the high overtones in the vocal sounds. Apparent dullness of children in school is sometimes due to this cause, and inability to understand whispers easily is always a sufficient reason for having the hearing tested by a psychologist. This condition is not detected by the average tests employed by ear specialists. Not being subject to therapeutic methods, these conditions have not commanded the attention of physicians or the makers of audition tests.

These cases are not helped by the microphone devices, now much used by deaf people, because these devices intensify the low pitched tones relatively more than the high pitched, and so increase the difficulty of hearing language. In another type of deafness, in which the reduced sensitivity extends also to low pitches, these devices are beneficial. A third type of deafness, characterized by reduced sensitivity for low pitched tones, with less or more for the higher pitches, might be supposed to exist, on the basis of some theories of

2. Dunlap, Knight: The elements of scientific psychology, C. V. Mosby Co., St. Louis, 1922.

Teaching vocalization through the sense of touch. The natural rhythm through which relations are observed and recorded by the normal child are lost upon the deaf. New avenues for the reception of stimuli must, therefore, be created. Meanwhile intense study of facial expression is made to find a suggestion of the sentiment conveyed by modulation as well as by the meaning of the sentence.

*The illustrations presented with this article are from the Detroit Day School for the Deaf. They are supplied by the courtesy of City Health.

1. Hubbard, Thos. O.: The psychology of the deaf, The Laryngoscope, 1922, xxxii, No. 6, p. 473.

THE CRITICAL AGE

The age of GROWTH—*of* STRAIN —*of* INFECTION

THE importance of a correct diet during the age of growth cannot be overestimated. For the injury resulting from insufficient or inadequate food may be permanent in its effects.

VIROL is of especial value in the diet of School Children because it is digestible and easily absorbed. It contains the vitamins essential to growth, and enriches the diet in those elements essential to

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It has been established by independent scientific tests that VIROL increases the power of resistance to disease of bacterial origin.

At all stages of Growth and Development VIROL is a food of very great value. Whether for the School Child, the Growing Babe, or the Expectant and Nursing Mother.

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Bone Marrow, Beef Fat, Malt Extract, Eggs, Lemon Juice and Salts of Lime and Iron.

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audition, but no such type has come under observation.

The scientific help for the deaf, therefore, involves psychologic diagnosis, and educational methods which capitalize as far as may be the residual hearing as a basis for organized sense-impressions. A valuable supplementary help is in organizations for the deaf making it their object to break the isolation enforced by their handicap, but that is another story. Statistics were reported in 1921 on sixty-eight schools for the deaf, with 11,316 pupils enrolled; in addition to this number there were 69 public schools handling 2,482 pupils, and seventeen private schools with a registration of 605, in all a very inadequate provision for those who are defective in hearing if the percentages on the basis of recent tests are accepted. The highly constructive work being done by the Detroit Day School for the Deaf is described by Gertrude Van Adestine[3], principal.

The Detroit Day School for the Deaf was organized in its present form in September, of 1900, and is a part of the general plan for the education of the handicapped child. It is supported by the state and the city of Detroit, and is open to pupils who by reason of defective hearing cannot make satisfactory progress in the regular grades. The pupils are taught speech and lip reading and with a few exceptions follow the course of instruction planned for hearing pupils. The ages of pupils vary from three and one-half to eighteen years. They are admitted at such early age because it is very important that the voice be trained and good speech habits formed while the child is still young. Lip reading is also taught, as a means of understanding the speech of others. Much is done in developing rhythmic appreciation through the sense of touch, by means of work with the piano.

The physical defect of deafness is not in itself visible, and its presence is noted only by its results, or the failure to follow spoken direction. Too often the child is classified as stubborn or inattentive, when he merely fails to hear or hears indistinctly what is said to him.

Cases of defective hearing may be divided into two general groups—the totally deaf, and the hard of hearing. The case of the totally deaf child offers no confusion as to classification. This type is easily recognized and he is at once placed in his own special group in the School for Deaf. The classification of the hard of hearing child is more complex, and there are conflicting opinions as to the degree of handicap which makes it necessary to send the pupil to the deaf school.

Of the number of hard of hearing children who have been transferred from the regular grades, are the following types:

(1) Children with defective hearing who are failures in the hearing schools and are sent to the deaf school as a last resort, these children having lost from one to four years in mental development that their school experience should have given them. Their hearing is deteriorating. They are tired of listening and not hearing what is said to them. They become absentminded, distrait and are often troublesome cases so far as attendance and discipline are concerned. They are the type of children who must have the faculties of the mind reorganized before they can concentrate on any subject. They need constant supervision and direction in all class room work in addition to special work in lip reading by a trained teacher of the deaf.

(2) The children who still have hearing through which they may gain the major part of their instruction, but whose hearing is becoming defective. The mental development has not been retarded by failure to hear and the physical condition has not yet been disturbed by the nervous strain of continually listening without success. This is the only type of deaf child who could with profit attempt to work again in the grades with hearing children after lip reading has quickened his comprehension.

It is important that pupils who exhibit any degree of hearing defect receive attention immediately the defect is discovered, to prevent the development of character defects. These may be classified as, (a) defective speech (sometimes almost unintelligible), (b) growing dislike of school and lack of interest in school affairs, (c) an increasing sense of failure and a lack of any sense of responsibility.

"One or more of these conditions are present in most cases of pupils received in the department," states Miss Van Adestine. "However, with our small classes and individual attention we are able to help the pupil regain his self-confidence and the desire for self-direction. We must have sufficient time to effect this desired improvement before the pupil is allowed to leave our department, since the accumulated shortages arising from several years of neglect cannot be made up by a short period of training in lip reading. A recent survey of our pupils indicated many different physical conditions of the ear, and consequently a wide variation of different degrees of hearing. For purposes of further study we have classified the different degrees of hearing into such groups as will indicate educational possibilities. Six groups were found to cover the field in a general way. They are: (1) Totally deaf; no sound perception; (2) conscious of sound, but cannot imitate; (3) imitative sound perception; (4) imitative speech; repeats words and short sentences; (5) hears (comprehends) conversational speech at — feet; (6) apparently normal hearing but does not speak. These lines between these groups are not sharply drawn, and pupils may pass from one group to the next, depending, however, on the cause of deafness and the condition of the ear.

3. Van Adestine, Gertrude. What Detroit is doing for Children with Defective Hearing, City Health, September, 1922.

Children learning the rhythm of music through the sense of touch.

"ELIMINATION OF WASTE

is definitely increased by the ingestion of raw yeast"

A double series of tests, recently conducted to determine the laxative effect of Yeast, has revealed some surprising facts.

The subjects were isolated over a period of weeks, and fed according to a rigidly regulated scheme of diet. Examination of the bulk, moisture, and chemical constituents of the feces was made from day to day. The findings showed that adding Fleischmann's Yeast to the diet in quantity of two to three cakes per day produced the following results:

A definite increase in the elimination of waste by the bowel.

Increase both in the bulk of the feces and in their moisture content.

A laxative effect more marked with the ordinarily constipated subjects than with the normal ones—indicating that yeast acts as a bowel regulator rather than a cathartic.

Further research work on both animal and human subjects is now under way. The Fleischmann Company is sponsoring these important investigations, and is anxious to give the full results to the medical profession as soon as possible after they are complete.

A new authoritative book; written by a physician for physicians. This brochure discusses the manufacture, physiology, chemistry, and therapy of yeast. A copy will be sent you free upon request. Please use coupon, addressing The Fleischmann Company, Dept. Y-12, 701 Washington Street, New York, N. Y.

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Please send me free a copy of the brochure on yeast based on the published findings of distinguished investigators.

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More than fifty per cent of our enrollment fell under groups one and two; 25 per cent fell under group five."

The above scale for the classification of different degrees of hearing as developed in the Detroit school has been accepted by the state department of public instruction as the classification to be placed on the official annual reports of the Day School for the Deaf.

For some time the Detroit Deaf School has been doing such research work as will lead to remedial measures for the deaf. Special stress has been placed upon auricular training which is given for the following reasons: To give the pupil the stimulus of sound sensation; to improve his voice and language concept; and to stimulate and aid in retaining the residual hearing.

At the present time investigation of children in the city schools and the careful measurement of the hearing have not reached the point where the number of cases of hearing defects and how they should be classified can be stated with assurance.

Figures from the Board of Health statistics indicate more than seven hundred cases of ear defects reported by school physicians from the examinations of about 40,000 pupils in three groups—the first grade, the fifth grade, and the underweight group. It is planned to make a further study of these groups, and a report of the finding will be available later in the year on which to base future activities.

All cases of defective hearing are reported to the clinical department of the board of education. Here the pupil is referred to an ear specialist who returns a statement of the diagnosis together with a recommendation for medical treatment and educational training. An aurist has recently been specially assigned to this department by the board of health and Dr. Emil Amberg will hereafter supply the much desired medical cooperation.

With these increased facilities and the new School for the Deaf, recently allowed by the council, every child in Detroit whose hearing is defective may have the special training in lip reading and the benefit of auricular training at an early age.

School Health Work Extends to the Community

THE school affords an ideal means for the spread of contagion. Here representatives from every section of the community are brought together in an atmosphere that is prone to be overheated and otherwise vitiated, and are held in close quarters over periods varying from four to six hours daily. The greater percentage of the contacts are children who have not acquired those conscious habits of personal hygiene which, when all is said, must be considered the best ultimate protection of the individual against contagious disease. Hence everywhere the opening of school witnesses the speedy development of sporadic cases into definite foci of infection.

In the case of Milwaukee just prior to the school year of 1922-23 a few cases of measles were known to exist among several south side families of foreign extraction. Visiting back and forth accounted for a second area just across the river, the disease being still confined to definitely circumscribed areas. The first week of school 10 cases were reported; 13 new cases were discovered the second week; 19 the third; 43 the fourth; then 114, 125, 205, 283, 324, and 465 in as many successive weeks.

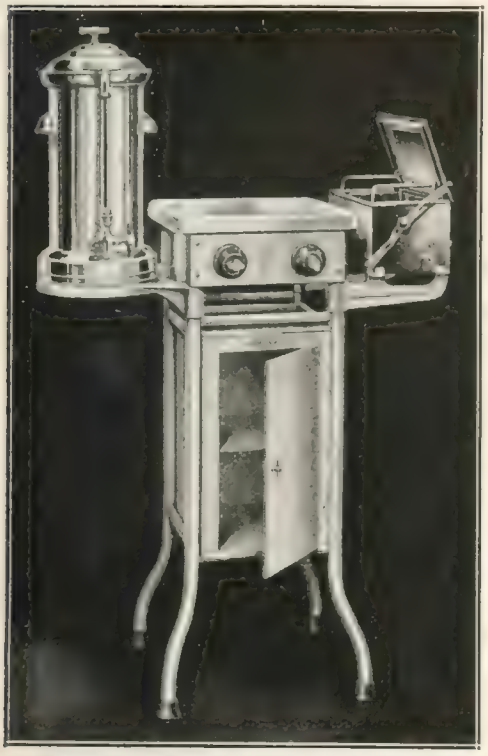
Milwaukee has a well organized health department that charts its contagions, placards affected areas, and carries out assiduously other accepted procedures under such conditions on the basis of cases reported by physicians as required by law. In the schools this health service is supplemented by a medical and nursing personnel of seventy-five persons, but the degree of medical supervision it is possible to administer to seventy-five thousand children by seventy-five people is about as effectual a preventive measure as the placarding of only the frank cases of contagious disease.

When it is desired to kill a plant pest, or to rid a community of rodents or vermin, measures of extermination are based upon exact knowledge of the life cycle and habits of the pest. Knowledge is not lacking on the part of scientists of the precise curves that mark the rise of epidemics, but in the case of contagious disease this knowledge is not put to work. The usual channels of communication for the more common diseases and the periods of incubation are not popularly known. Placarding and isolation are delayed until definite diagnosis becomes possible, and contacts for the most part remain unlimited during the period best calculated to favor the spread of the disease.

School medical inspection by experts may reasonably fail in the case of Milwaukee, because it is physically impossible for one physician or nurse to inspect daily—at the beginning of the school session—the one thousand persons allotted to his care.

However, Shorewood, a suburb of Milwaukee, has found a satisfactory solution. During the former measles

The new Shorewood School has a completely equipped clinic, with facilities for health building as well as health guarding.



Industrial Clinics Use this *because—*

It sterilizes water and instruments.

It has cabinet and treatment table.

Instruments can be removed by sterile hands.

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epidemic, when Milwaukee as a whole exhibited eight thousand cases, Shorewood had six. So far this year Shorewood has not reported a single case. During the following year not one child, while attending school in Shorewood, contracted whooping cough, scarlet fever, or any other disease common to children, and only one child carrying contagion with it managed to get into the single parochial school in Shorewood. That one child created enough mischief to account for about one-fifth of the total reportable diseases during the year. The record of the schools for the three succeeding years was equally good.

Shorewood takes the position that the school must not be permitted to constitute a health menace to the growing child, that the children have a right to go back from school at night as well and as free from the infection as when they left their homes in the morning. No agency other than the school has either the machinery or the contact with the public to make comprehensive or adequate health work possible. The teachers, therefore, are constituted by the health department with the proper authority under the leadership of the medical inspector and are held responsible for the health of their charges. Every teacher has full information of all epidemic conditions known to be brewing and is advised as fully as may be of typical signs and of the period of incubation. This information is likewise passed on to the parents. In the daily routine inspection of children as they enter the rooms, every child is excluded who shows signs of a cold, running nose, or watery eyes. Measles starts with symptoms of a common cold. If the affected child is not isolated at an early stage of the disease, and isolated before definite diagnosis can be made on the basis of clinical signs, the psychologic moment to protect the school from invasion has gone, and control becomes impossible.

Placard on Suspicion

The channels of communication must be broken before diagnosis is made, and long before definite diagnosis can be made placarding "on suspicion" is utilized. The physician is not asked to hazard a guess before diagnosis on the basis of clinical symptoms is possible. It does not matter what the case is called, so long as it is isolated. Therefore, in the case of a measles epidemic, a small card goes up "Measles suspected." The bill board type of placard is never used except in the event of an attempt to break the quarantine, when the usual machinery, and police power back of it, are called into action for the necessary control. The poster sign is then placed at the back of the house merely to conform to the law.

It is desired in every case to secure voluntary cooperation. A basis for intelligent cooperation is laid down in the health education of the children. Fifteen minutes every day are devoted to health work. The specific conditions of threatened diseases are taught, the cause and effect of exclusion are emphasized, and the "why" of any seemingly radical measure is always fully explained so as to obviate at the outset any unnecessary opposition. The schools in Shorewood can always be relied upon to disseminate the knowledge upon which intelligent cooperation is based. The spirit of prevention of needless attacks of communicable disease has so far permeated the community that health, school, and medical machinery are correlated. The physician now reports suspected cases, and parents who formerly concealed cases of contagion, now call for placards and report on conditions in their neighborhood.

Clearly it is a question of community ethics. The medical profession affords the leadership, the school, the machinery, and it is now a matter of opprobrium to permit contagion to pass to a second family. Indifference to this ideal is in Shorewood becoming as unpopular as theft, or fraud, or violence. To expose a child to contagion is popularly characterized as a violation of human rights. The needed knowledge to make effective a health program is the basis of public action, and the neighborhood itself is now in a position to deal with neighborhood foci.

W. C. Sieker, a citizen first, became health officer of Shorewood by accident. There is nothing fortuitous, however, about the success of the activities of his department over a period of five years. The morbidity curves of the city at large are not the morbidity curves in Shorewood, all because of the unique health machinery of the schools. This work is now being supplemented by a school laboratory and a school bacteriologist. A far sighted program of positive school health will be furthered likewise by nutritional work under a graduate in home economics, but that is another story.

The devastating effects of epidemics on community health are comparatively easy of control in small towns and isolated communities, according to Mr. Sieker, but the problem of contacts is much more complicated in the suburb of a large city where communication is more or less constant between the ever present foci of infection. In a city suburb there is the added difficulty of never being able to relax on measures of popular education, for the population of Shorewood, a typical city suburb, shows 20 per cent growth each year. The shifting population always offers a constant problem in fostering a community feeling and maintaining the necessary uniformity in community ethics.

Cults Present Obstacle

There is no unique condition of enlightenment or better standard of living in Shorewood other than the drastic methods employed to exclude contagion that would account for the low morbidity rates that have obtained in the last five years. Economically, conditions differ in no way from those sections which adjoin it, the Eighteenth Ward or in the Washington Park district. Because of its cults, Shorewood is in a way more difficult to control than foreign wards where the people understand the force of law and obey the health officer's dicta. Certain of the cults have asked the privilege of foregoing physical examination for their children, a request which has been granted provided the parents themselves would undertake to keep at home the children who showed signs of colds. The distinct reservation has been made, however, that in the event of diphtheria, no exception would be made in cultures taken to discover possible carriers. The successful abortion of a diphtheria epidemic last year by the discovery and removal of fourteen carriers precluded any objection to this reservation. The rules imposed by the Shorewood health board go beyond the state laws. Power has been granted in the village that health regulations posted four or five days become operative as laws. This provides for emergent measures. Ordinarily, however, flexibility is desired and the position is taken that education and high ethical standards rather than force should govern. The citizens themselves report by telephone in regard to conditions calling for investigations. No names are given or asked for, and no spy system is in force, for the same citizens hasten to report conditions in their own families. In point of fact, five years of health demonstration have made the community health conscious, and all are health propagandists.

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Venereal Diseases in Eastern Europe

Health authorities and intelligent people in eastern Europe are more than ever before alive to the prevalence and seriousness of venereal diseases as an impediment to individual and national health and happiness. Countries invaded by foreign armies during the war attribute the seriousness of their present problem to the invaders, and the invading armies are, on the other hand, blamed for the increase of infection which follows their return home. Whatever the truth of these accusations may be, it is quite certain that armies not controlled as the American army was during the world war, after infecting themselves do distribute and increase the amount of infection in the civilian population.

In an account of the problem of the social diseases in eastern Europe, Walter Clarke writing in the *Journal of Social Hygiene*, states that in war-shattered Belgrade valiant efforts are being made to relieve the distress caused by inadequate facilities with which to care for poverty-stricken people infected with venereal diseases. The same anxiety to cure and prevent syphilis and gonorrhea is evident in Sofia, Bucharest, Prague, Warsaw, Riga, and Constantinople. The health authorities and other leaders of public health work in these cities are sufficiently alive to the needs of infected persons, but the difficulties which stand in the way of effective measures are not likely to be overcome without a long struggle.

The lack of medicaments due to the low purchasing power of the debased currencies of eastern European countries and the lack of physicians are the greatest obstacles in the countries of east and southeastern Europe to the establishment of adequate and sufficiently numerous treatment centers. Sufficient arsenical compounds for the treatment of syphilis are produced in England, France, and Germany to supply the needs of Europe, but the almost worthless paper money of countries like Poland and Rumania has prevented the general importation of sufficient quantities of these needed supplies. The continued depreciation of the German mark, however, has made it possible for countries having debased currencies to purchase German drugs, and these drugs are now in general use in the Balkan States and eastern Europe.

The problem of trained personnel is a matter that cannot be quickly remedied. It is in Rumania, Bulgaria, and the Baltic states that the need is the greatest. An appeal has been made to the League of Red Cross Societies to furnish doctors to accompany mobile units which it was proposed to send from village to village treating the general population, syphilitic children, who are very numerous, being given special attention. Lack of the needed funds made it impossible for the Red Cross to accede to this request.

Constantinople is, according to Mr. Clarke, in the most tragic position of any city outside of Russia; the establishment of a medical school at Sofia will in time relieve the dearth of physicians in Bulgaria; health education is well supported in Jugo-Slavia; recovery is proceeding rapidly in Czechoslovakia; Poland is on the way to recovery; but Latvia, Esthonia, and Lithuania lack almost everything which is needed for good health work. Fortunately for these three small republics, however, their venereal disease problem seems less acute than in the other countries mentioned.

In Poland, tuberculosis was as serious a problem as was typhus even during the epidemic years. Syphilis like tuberculosis is not spectacular and is even more difficult to control than typhus. The governments of eastern Europe are now awake to the ravages of the venereal diseases and as economic conditions improve will no doubt take steps to provide adequate instruction, diagnosis, and treatment for the people. The present adverse economic conditions have restricted their efforts to a minimum, yet, what they are doing compares favorably under the circumstances with the activities of western European states.

British Doctors Discuss Milk

By Our London Correspondent

BOVINE tuberculosis, pasteurization, and dried milk were topics of discussion before the British National Clean Milk Society which convened in the historic council chamber of the Guildhall, London, for three days beginning October 15.

Sir Alfred Mond, then Minister of Health, stated the desirability of having milk free from tubercle bacilli. The bill he had succeeded in passing through the House of Commons would give the people the right to insist upon milk of a certain standard.

The doctrine that small doses of tubercle bacilli taken in milk during childhood might have an immunizing effect upon human beings was rejected by Dr. A. Stanley Griffith, research bacteriologist to the Medical Research Council as too dangerous to the child since even a small dose might set up fatal tuberculosis. It was pointed out by Dr. Nathan Raw, M.P., that at present tuberculosis germs were found in about 15 per cent of all the milk supplied and that if the Milk Act recently passed could be carried into effect the danger to children would be almost completely removed.

The morning session was devoted to various papers setting forth the advantages and disadvantages of a pasteurization and other methods of treating milk. Prof. Georges Dreyer, professor of pathology in Oxford University, pointed out the danger of keeping the milk so heated too long. He stated that dried milk would be a boon to the industrial centers because it was a good substitute for raw milk. Dr. Robert Hutchison stated that it was his opinion that the decline of deaths from infantile diarrhea in recent years was due to the ever increasing use of dried milk for infant feeding especially among the working classes. Dried milk was found to be much less liable to contamination in the home than wet milk was his further contention.

Pasteurization as a means of preventing the spread of infectious diseases, such as typhoid fever, septic sore throat, scarlet fever, and diphtheria was urged by a paper by Dr. Charles E. North, of New York, read by Colonel Barham. Infection of the udder in dairy cows constituted by far the most serious menace to the public health originating from dairy cattle the paper stated. Since the adoption of pasteurization in New York, the death rate of infants under one year of age had been reduced from 165 to 1,000 born to 70 per 1,000 born. Dr. Eric Pritchard testified to the belief that pasteurization did not destroy the milks' nutritive value.

Dr. Leonard Hill, director department of applied physiology, Medical Research Council, stated it as his opinion that dried milk had created a revolution and that distribution by grocer or some similar agency would eliminate the milkman and so reduce the cost of supply.

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For Impartial Clinical Study of the Cults

The issues in the recent election which in certain states seem to threaten the prerogatives of scientific medicine are important enough, says Dr. Channing Frothingham, of the faculty of Harvard Medical School, to justify a demand on the part of the medical profession that the claims of various cults for efficacy of method be submitted to precise clinical and laboratory investigation. Until some basis of fact is presented, they cannot be evaluated as methods of treatment, nor can any referendum to popular vote on privileges of lower educational requirements for license to practise their healing arts be properly conceded. Under the title "Osteopathy, Chiropractice, and the Profession of Medicine," Dr. Frothingham's summary of the situation as it exists today was utilized by *Colorado Medicine* in its activities on the issue in Colorado.

"Attempt has been made to show that, in both these professions, there is something of value in the treatment of certain diseased conditions, even if the exact method by which this benefit is obtained is not understood. It has also been attempted to show," says Dr. Frothingham, "that these professions can in no way replace the established facts of medical science; and that those using these methods of treatment should have the same general knowledge of medicine that is required of the regular physician in order to safeguard the individual and the public health."

It is made plain that the work of neither of these two cults rests upon any proved scientific basis; that they have not done any experimental work to prove their theories, and that as practised today by men uneducated and untrained in pathology, in physiology, and in the scientifically proved facts about many diseases, they are a menace to public health. Dr. Frothingham considers that the methods used should be scientifically investigated. When any sect in the healing art becomes strong enough to gain general public recognition over large territories, it is worthy of critical study by capable scientists in order that the truth may be known and therapeutic measures of value become available to the general medical profession which is best prepared to assign them to their proper spheres in the treatment of the sick. By its readiness to act through a properly constituted body, scientific medicine can and should know the clinical values or nullities of widely heralded systems of treatment. It should likewise be in position to speak advisedly against worthless measures.

With the average American citizen, the plea of the under dog outweighs any argument that may be advanced as an *ipse dixit* in the name of science. The medical profession should therefore play fair to the extent of carefully investigating systems which *a priori* seem to it devoid of merit. It can afford to be magnanimous. Under a democratic form of government it cannot afford to refuse to ascertain the value of innovations and stands condemned before the laity if it persists in such refusal. It should without prejudice use therapeutic measures of proved value irrespective of where found and by whom promulgated. In this way may it gain full confidence of the public. It may at the same time eliminate any reasonable excuse for the recognition of men devoid of scientific training who practice systems of limited or questionable use.

In order to meet the issue there is at present a move on foot to create a commission of capable scientists of judicial temperament to investigate clinical results of treatment by schools of healing of wide popular recognition. The effort is to make this commission, as far as humanly possible, efficient and free from bias. Its selection and methods of procedure should be determined by representatives of the national medical bodies working in conjunction with representatives of the American Bar Association, the National Educational Association, the Association of American Universities, the Rockefeller Foundation, the Carnegie Foundation for the Advancement of Teaching, and such other standardizing agencies as may be deemed best to invite or can be interested, to the end that its findings may be given the widest possible credence by all thinking people.

The Federation of State Medical Boards of the United States stands sponsor for the general movement and the various organizations mentioned are being invited to send representatives to a conference to consider ways, means of organizing and direction of such commission. The American Medical Association and the American Institute of Homeopathy have approved the undertaking by official action and it is hoped that the others will comply.

Antivivisection and Health

THE defeat of the antivivisection measure by the voters of California at the polls November 7 was due largely to the effective education campaign carried on against the proposed law by the medical and public health professions. The dependence of health on vivisection is clearly pointed out by David P. Barrows, president of the University of California, speaking for the board of regents, and by Ray Lyman Wilbur, president of Leland Stanford University, speaking for the board of trustees. Their statement herewith from the *Journal* of the American Medical Association urging the people to vote "no" on the proposed measure is typical of the sane and scientific attitude on this question:

The advance of sanitation, modern medicine and physiology, nutrition, the teaching of biology and the protection of our industries and agriculture all rest on animal experimentation. The control of the epidemic diseases of man and of animals, the management of surgical operations and of childbirth and the certification of milk, food and water supplies would be impossible without the knowledge gained by such studies. In fact, the present day protection of the public from diseases, which is vital to our community life, rests on animal experimentation.

Not only would it stop the research work now going on in the medical schools, hospitals and laboratories and in the Bureau of Animal Industry, but it would damage the market for most of California's food products, and markedly reduce the confidence of visitors coming into the state. If California could not certify to its foods and water supplies, could not guarantee protection against contagious diseases, could not provide certified milk, the effect on agriculture and industry in the state would be disastrous. The near collapse of the olive industry, due to the poisoning of a few people in eastern states, and the way in which the industry was saved by the researches carried on in the laboratories of the two universities, indicate the imperative necessity of freedom for the universities in animal experimentation. California food, instead of being looked to as an example of purity, would be shunned.

The initiative measure would make it impossible to test with birds for deadly gases in the mines of the state. It would stop the manufacture of serum for the prevention of hog cholera, the preparation of vaccine for anthrax, and the various other products that are required for the protection of our industries in agriculture and that annually save millions of dollars and prevent great mortality among domestic animals. Under the act, operations on various farm animals could be carried on without anesthetics to increase the palatability of foods, but no animals could be used in experimental work if the information obtained is for the benefit of a person or of the human race.

We feel that no worse attack on the welfare of the state and on the right of the universities to seek and teach the truth could be made. Every man, woman and child, every unborn babe, every domestic animal in the state would be affected if this measure becomes a law. It strikes at all. It is unnecessary special legislation, due to prejudice and misinformation. No one will tolerate cruelty to animals. The present laws of the state are drastic and sufficient to control any abuse. We know that there is no cruelty to animals in the laboratories of the universities.

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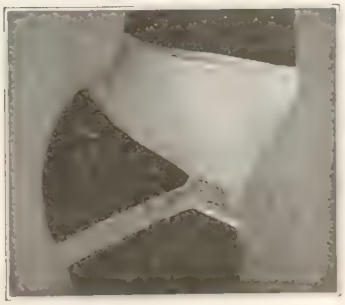

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FROM THE FIELD

The Child Health Organization of America through the MacMillan Company has published "Everychild's Book" by Mrs. Frederick Peterson and illustrated by Jessie Gillespie. The book is paper bound and published on heavy glazed paper. The verses, one for each letter in the alphabet, and illustrations are suitable for primary children.

A two years' evening training course in the fundamental principles of physical education is being given by the division of physical education, board of public education, Philadelphia. The course takes up the theory of organization and administration, the philosophy of play, and in addition gives opportunity for practical work.

Motion pictures have become the subject of research in several large universities states *The Playground.* The Universities of Chicago, Wisconsin, Oklahoma, Kansas, and Columbia University have conducted scientific inquiries into the motion picture as a means of classroom instruction. It has been found to be effective especially in the study of the psychology of reading and writing. Thirty-four cities are using educational films in classrooms and assembly halls. New York spent approximately $10,000 for this purpose last year, while Los Angeles spent $25,000.

To furnish apes for medical experiment the Pasteur Institute is establishing a reservation in French West Africa where anthropoied apes will be able to breed and thrive unmolested. Because they are the only animals that contract certain diseases to which men are subject, large numbers are used for experiment. Laboratories will be built on the reservation where experiments can be carried out without costly transportation. Dr. Wibert, a young French bacteriologist, has been appointed by the institute to start the ape farm.

In the development of various forms of betterment work in industry, music has been increasingly employed because of the view that it exerts a vital influence on employee psychology, according to the National Industrial Conference Board. The idea of associating music with industry began in factories with the gathering of small groups to sing at the noonday lunch period, and has grown into a well-developed movement for organized music in many of the leading industrial establishments of the country. A Chicago concern which now has ten minutes of chorus singing at 10 a. m. and another ten minutes at 3 p. m., reports that the former excessive labor turn over and absenteeism practically has ceased. Several Detroit factories are said to have effected a 10 per cent increase in output by the introduction of music in working hours.

As conditions existed in 1920 it required more than 100,000 of the population to supply the professional schools of the country with one student of veterinary medicine, 23,000 to supply one student of pharmacy, 15,000 to supply one student of theology, 12,000 to supply one student of medicine, 5,000 to supply one student of law. There were in 1920, 78 medical schools with a total of 14,800 students and 106 law schools with 20,842 students, according to Statistical Abstract of the United States, 1921.

The Joint Administrative Board of Columbia University and the Presbyterian Hospital announces that the site for the new Medical Center has been transferred to the University and the hospital. The land site extending between 165th street and 168th street, from Broadway to the Hudson River, is in excess of twenty acres and is valued at about $4,000,000. It was given by Mrs. Stephen V. Harkness and Edward S. Harkness.

Warning against attributing every pathologic state which appears during periods of deficient feeding to insufficient intake of vitamins is sounded by P. G. Shipley, in the *Journal* of the American Medical Association. Deficiency diseases are caused not alone by the lack of vitamins but by too low feeding of protein and often to improper amounts of carbohydrates and salts, he states.

The Massachusetts department of public health with the assistance of the Massachusetts child labor committee has published a pamphlet "That Depends" which urges health certification backed by thorough medical examination of children going into industry.

Senator Lodge advocates a national law, patterned after the Massachusetts 48-hour statute, limiting the hours of labor for women and children. He also favors a constitutional amendment prohibiting child labor, if a bill regulating employment of children can not be framed to meet the approval of the Supreme Court.

The teaching of physical education in the public schools of Michigan is mandatory. The term is interpreted to mean anything which will better the physical condition of the children and includes in its scope the teaching of health habits, free and directed play, games, and relaxation periods. Floyd A. Rowe, state director of education, is the author of a pamphlet "Physical Education for Elementary Schools" which contains numerous games and physical exercises for younger children.

A conference to discuss ways and means of assisting the mental, moral, and physical development of the nation's youth was called by Secretary of War Weeks at war department headquarters November 16. The Boy Scouts, Y. M. C. A., Red Cross, and state and municipal authorities were represented.

"Poisoned pie policies" are now offered by a New York firm of insurance brokers to protect restaurant and delicatessen owners from the scores of damage suits filed yearly by persons who claim, often fictitiously, that food procured from these establishments has poisoned them.

Though smoking may injure the finest reactions it does not retard the ordinary worker is the finding of an exhaustive inquiry into the effect of tobacco on smokers conducted in the psychological laboratory of Johns Hopkins University by Dr. Knight Dunlap and associates.

An international labor directory of government bureaus and employers' and employees' organizations in forty-seven countries has been issued by the International Labor Office at Geneva. The directory also includes the organization and personnel of the council and the assembly of the League of Nations and of the International Labor Organization.

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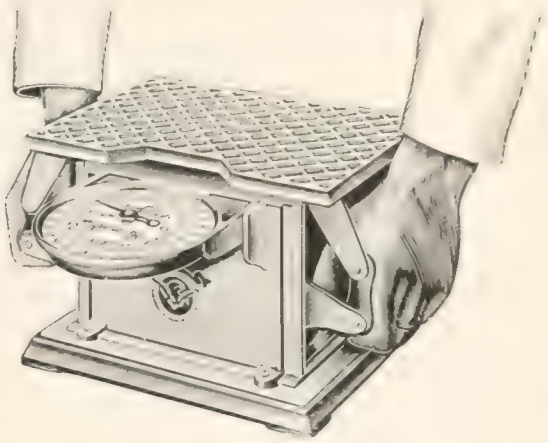

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The Universities of Manchester, Leeds, Edinburgh, Cambridge, Durham, and London, and the Royal College of Physicians of London now grant diplomas in psychological medicine.

Mental, physical and social welfare problems relating to the people of Illinois were discussed by the Illinois Conference on Public Welfare at East St. Louis, November 12, 13, and 14. Among the speakers were Dr. Carl C. Chatterton of St. Paul, Minn., who spoke on the state care of crippled indigent children.

A new clinic has been opened by the U. S. Veterans' Bureau at Huntington, W. Va., under the direct supervision of Dr. L. V. Guthrie, superintendent of the Huntington State Hospital. The building is entirely separate from the state hospital and is used exclusively for ex-service men, claimants of the bureau. It is equipped with all modern apparatus for the care and treatment of the different forms of psychosis and is identical with the clinics at Marion, Va., and at Catonsville, Md.

The U. S. Veterans Bureau has established schools for physicians at St. Elizabeth's Hospital, Washington, D. C., for the treatment of mental diseases and a physician's school for the treatment of tuberculosis is at Oteen, N. C. Expenses for the two schools will come from the Bureau's general fund, Colonel Charles R. Forbes announces.

A study of the U. S. Department of Labor dealing with conditions which attended the entrance into working life of 5,692 children in Boston, Cambridge, Somerville, and Chelsea, Mass., shows that both child and community are losers when children under the age of 16 are gainfully employed. Such children have not sufficient education to make them adaptable to changing industrial conditions or to give them an understanding of the duties of citizenship.

The California Association of Physiotherapists has appointed a commission to survey the schools of Europe and America giving courses in physiotherapy or related subjects; to survey educational and practical conditions of physiotherapy in the state of California; and to draw up a complete bibliography of physiotherapy literature.

The American City reports the decision of the United States Circuit Court of Appeals, Fourth Circuit, which upheld the action of a county board of health in North Carolina which prohibited circuses and carnivals in a county during a certain period to prevent the spread of communicable diseases. The resolution of the board of health stated that the county was just recovering from a serious epidemic and that communicable diseases were prevalent elsewhere. The owner of a traveling show brought suit when a license was refused him but the court sustained the action of the board of health.

Only one and one-half per cent of the bills and resolutions introduced in the sixty-seventh congress were concerned with national health. During the two sessions of this congress, the first session of which convened in April, 1921, and the second session of which adjourned on September 22, 1922, over 18,000 bills and resolutions were introduced in both houses. Of this number, less than three hundred pertained to public health. Five hundred and eighty-seven bills and resolutions became laws but only about 25 of these were measures of direct interest to sanitarians. Statement No. 36 issued by the National Health Council contains a review of the national health legislation before congress.

The Illinois state department of public health is conducting a correspondence course of instruction for district health superintendents and local medical health officers. As a supplement to this course, a weekly health index will be placed in the hands of those on the mailing list.

Physicians and residents of Baltimore County, Maryland, are organizing a county health association to take over the work formerly conducted by the Red Cross. Dr. William E. Bridges, superintendent of Eudowood Sanatorium, is chairman. A committee of five has been appointed to confer with officials of the Baltimore County Children's Aid Society and other organizations on forming a health association. The new organization will furnish a nursing service throughout the county. Assisting Dr. Bridges on the committee are Dr. Frank W. Keating, superintendent of Rosewood State Training School, A. D. Stebbins, Dr. W. P. E. Wyse, and S. Duncan Black.

"Matty Wins His Greatest Game" is the title of the 160-foot motion picture film to be released by the National Tuberculosis Association in connection with the Christmas seal sale. The trailer shows the hero in the days when he was the greatest pitcher, the announcement of his illness follows, and the film concludes with pictures of "Matty" after his recovery from tuberculosis.

Colds, rhinitis, headache and sore throat constituted 35 per cent of all calls to the dispensary, whereas colds, septic throat and headache, plus their more serious developments (influenza, grippe, pneumonia, laryngitis and tonsilitis), were responsible for 41 per cent of total time lost on account of sickness. Indigestion induced 5.4 per cent of total dispensary calls, and contributed 4.5 per cent of all time lost on account of disabling illness.

As a part of the program of the division of maternity, infancy and child hygiene of the state department of health, eighteen classes have been formed in various parts of New York state for the special instruction of public health nurses in the hygiene of maternity.

The following members of the board of directors of the American Child Hygiene Association have been appointed by President Herbert Hoover to prepare with a similar committee from the Child Health Organization a constitution for the merged organization: Homer Folks, chairman, Dr. Philip Van Ingen, secretary, Bailey B. Burritt, Dr. S. McC. Hamill, and Mr. Hoover. Dr. Livingston Farrand and Dr. Richard M. Smith are alternates.

A new mental clinic, the fortieth now in operation under state hospital auspices, has been established in Batavia, N. Y. by the Rochester State Hospital.

That whooping-cough in view of its complications and sequelae and its high mortality rate should be regarded as a major communicable disease and that parents and physicians should be instructed and urged to recognize that strict quarantine is essential is the recommendation of the committee appointed by the New York City health commissioner to consider the use of vaccine. Members of the committee were Drs. J. J. Blumenthal, Robert J. Wilson, L. H. Harris, and Wm. H. Park.

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Forty Notifiable Diseases

A small book by Dr. Hiram Byrd contains a simple discussion of the more important communicable diseases. Technical terms have been largely omitted as the book is intended to be a summary of the important facts that should be a part of the knowledge possessed by every citizen, and deals only with those aspects of the subject that a layman can reasonably be expected to assimilate.

After a brief discussion of the nature of germs, forty of the notifiable diseases are classified according to the nature of the causative agent, viz. known vegetable germ, known animal germ, germ not known, and filterable virus. The remainder of the book is devoted to brief treatments of the nature of each of the diseases, together with such information as will aid the reader to escape infection or to cooperate with the physician when misfortune does befall.

World Book Company, Yonkers-on-Hudson, N.Y., 1922.

The Evolution of Public Health Nursing

Historical works by specialists who are professional historians are likely to furnish the unassimilated raw materials rather than the digested conclusions of history. This is not the case with Miss Annie M. Brainard's book. It is not only accurate but judicious and it shows the rare power of vision which presents the story of a movement in clear relief and in right relation to other tendencies of the times.

The outstanding points in the history of visiting nursing *per se*,— the work of the Deaconesses in the early church,— the foundation of nursing sisterhoods by St. Francis de Sales and St. Vincent de Paul,—and the stimulus to a similar work in the Protestant Communions by Pastor Fliedner at Kaiserswerth,—are first discussed. Then Miss Brainard outlines in a most illuminating way the development of the new practical humanitarian movement of the early nineteenth century and of the still more novel conception of prevention due to the early English sanitarians, and shows how the fusion of these constructive ideals with the instinct of service which actuated the religious nursing orders gives us the public health nurse of the present day. The spread of district nursing in England and the important influence there of the National (later the Metropolitan) Association for Providing Trained Nurses for the Sick Poor are admirably presented, as are the pioneer efforts made along similar lines in the United States at Charleston (1813), at Philadelphia (1839), at New York (first actual visiting nursing done by the City Mission in 1877) and in Boston and Philadelphia (where for the first time organizations were formed for the primary object of instructive district nursing almost simultaneously in 1886).

The last quarter of Miss Brainard's book, dealing with progress during the past ten years, suggests some haste in preparation. It contains much valuable information but in future editions should be reviewed with the perspective which characterizes earlier chapters and supplemented by fuller discussion of the return to generalized nursing after twenty years of fruitful experimentation with specialization, and of the important recent tendencies in nursing education.

New editions there will surely be for this volume presents a story of the development of public health nursing up to 1910 which will remain a classic.

W. B. Saunders Company, Philadelphia, 1922.

Urge Grading of Milk in New Jersey

With milk-selling conditions in New Jersey represented as chaotic, the department of agriculture and the public health department of that state counsel the adoption by municipalities of a recognized standard of grades for all milk sold in the community. Confusion is said to reign in many communities because of the absence of well-defined grades and fraudulent practices have become more or less common in some sections, in the sale of milk under terms which misrepresent the true facts, officials say.

"The Legislature has granted full authority to the state and the local boards of health to take such steps as are necessary to protect the public against unclean and unsafe milk supplies," says a statement from the New Jersey department of agriculture, "but, while numerous local boards have adopted certain restrictions, there has been heretofore no fixed standard.

"With more stringent health laws governing the conditions under which dairy herds are kept and milk handled, the cost of milk production has increased. Health officials, too, have been divided into two schools, one division favoring pasteurization of milk, the other for the sale of pure, raw milk. The proposed plan of standard grades permits both."

The proposed standards have been unanimously approved by the New Jersey Federation of Women's Clubs, the League of Women Voters, the New Jersey Health Officers' Association, the New Jersey Federation Boards of Agriculture, the Interstate Milk Producers' Association, the Dairymen's League Co-operative Association and the New Jersey Holstein-Friesian Cooperative Association.

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Reprinted from "The Medical Times".

THE AIR CONTENT OF BUTTER

JACQUES W. REDWAY, F.R.G.S.,
Mount Vernon, N. Y.

About ten per cent of the volume of butter consists of air. Air and its dust content is carried into milk at the moment of milking. Still more is blown into it during the cooling process. Another addition is made at the separator. Some is churned into it—a considerable proportion, in fact. In the kneading process air is worked into the butter; it is likewise kneaded out.

The effect of churning air into food product is illustrated in the case of fabricated ice cream. Six or seven gallons of the fabricated mixture is put into the freezer and churned or stirred until the volume is increased to ten gallons, by the addition of air.

Now, if the air that is churned into butter were pure and free from dust, one might assume that the occluded air would be harmless. Perhaps this might be the case, but experiment has shown that the contrary very probably is true. Butter exposed to the air becomes rancid unless a preservative is added. So does butter packed tight in firkins. It is the air within quite as much as the air without which causes the change. It is oxidation as well as putrefaction.

The Department of Agriculture has presented some figures worth noting. Freshly churned butter was analyzed as to its free oxygen content at measured intervals. When the butter was kept in still air at a temperature of 32° Fahrenheit, the changes in the amount of free oxygen were slow. An average of many samples showed that at the end of less than two months four-fifths of the free oxygen had entered into chemical composition with the butter fat. At ordinary room temperatures the disappearance of the free-oxygen was very rapid. That is, an oxidation of the elements of the butter fat had occurred, which not only impaired the flavor of the butter but also caused a destruction of the vitamines. With the loss of the vitamines the food value is lowered, or perhaps disappears; there remains only the fuel value.

The moral is obvious. Foods require preservatives; otherwise they must be prepared in an atmosphere which contains no free oxygen. W. Paul Heath finds that an atmosphere of carbon dioxide is effective in preventing oxidation; it also imparts a pleasant flavor to butter.

In the manufacture of butter W. Paul Heath forces carbon in the churn at the bottom, thereby displacing the air at the top. With careful manipulation, practically all the free oxygen is expelled and the prepared butter is aerated with an atmosphere which not only prevents rancidity but preserves the vitamines as well.

The investigations of the Department of Agriculture leave no doubt about the value of a process which excludes free oxygen from the manipulation of food preservation. Experiments show that butter with a content of carbon dioxide instead of air will remain sweet for a long time—indefinitely, in fact.

Carbon dioxide is a pleasant stomachic stimulant and its consumption in aeraed beverages is increasing. Indeed, humanity drinks millions and millions of gallons of aerated waters daily during the summer months, not for the sirups but for the refreshing effects of the carbon dioxide. It, therefore, should be as acceptable in butter and ice cream as in the so-called soda water.

Butter fat is by far the most important of the food fats, and its importance is due to its vitamine content. If the presence of carbon dioxide will preserve the vitamines, that fact alone is sufficient reason for its employment. At all events many dairies are giving the process a trial, and certainly it is worth trying.

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